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

2016

Document Version:
Publisher's PDF, also known as Version of record

Link to publication

Citation for published version (APA):
22nd Annual Meeting of the EAA
31st August - 4th September 2016 Vilnius

www.eaavilnius2016.lt
22nd Annual Meeting of the EAA

31st August - 4th September 2016 Vilnius

www.eaavilnius2016.lt
COMMITTEES OF EAA VILNIUS 2016

SCIENTIFIC COMMITTEE

The chair
Prof. dr. Albinas Kuncevičius, Vilnius University

The members
Audronė Bliujienė, Klaipėda University
Rimantas Jankauskas, Vilnius University
Rimvydas Laužikas, Vilnius University
Gytis Pilbauskas, Lithuanian Institute of History
Alessandro Vanzetti, EAA representative
Nurcan Yalman, EAA representative
Maria Gurova, EAA representative
Margaret Gowen, EAA representative
Gitte Hansen, MERC representative

LOCAL ORGANIZING COMMITTEE

Povilas Blaževičius, National Museum – Palace of the Grand Dukes of Lithuania
Agnė Čižytė, Lithuanian Institute of History
Laura Kūlina, Lithuanian Institute of History
Giedrė Motuzaitė-Matuzevičiūtė, Vilnius University
Elena Prancūnienė, Klaipėda University
Vaidas Steponaitis, National Museum of Lithuania
Vikintas Vaitkevičius, Klaipėda University
Gintautas Zabiela, Klaipėda University
Agnė Žilinskaitė, Academy of Cultural Heritage

Language and wording of abstracts that were submitted by the authors were not revised.

Conference Visual Style - Lukas Rukiškis
Layout Design - Edita Namajūnienė
Printed by “Šiauliai Jokūbas Publishing-Printing House”, Nemuno St. 139, LT-93262 Klaipėda, Lithuania
© The European Association of Archaeologists, 2016
© Public Institution The Academy of Cultural Heritage, 2016
© Agnė Žilinskaitė, 2016

CONTENTS

THE INTERPRETING THE ARCHAEOLOGICAL RECORD

TH1-01 Archaeo-Ommithology: Festive encounters in Human-Bird Interfaces in Prehistory and Early History ............. 7
TH1-02 Petification Processes in (Pre)-History ........................................... 14
TH1-03 Homo Ludens Medievialis: Towards an Archaeology of Medieval Play ................................................. 19
TH1-04 The invisible constant. Building new frameworks for an archaeological understanding of migration as cultural behavior ............................................. 23
TH1-05 All that Glitters is Not Gold: New Approaches to Sumptuous Burials between Western Europe and the Eurasian Steppe .................................................. 32
TH1-06 Lifestyles At Medieval Castles: Current Methodological Approaches .................................................................................. 39
TH1-07 The selective deposition of metalwork in the Bronze Age: a Pan-European phenomenon? ......................... 43
TH1-08 Under the raised roof: creating the space for family and community .............................................................. 54
TH1-09 Behind the glass: new reflections on glass in Iron Age societies .................................................................................. 61
TH1-10 Exploitation strategies of the animal environment of the last hunter-gatherers and first farmers in Europe .................................................................................. 67
TH1-11 Between landing site and virus – between empirum and town. Framing the early medieval urban development .................................................................................. 72
TH1-12 Costume complex (clothes and its attire): development, relationships, forms and technologies in time and expanse .................................................................................. 84
TH1-13 Tradition and innovation in textile technology in Bronze Age Europe and the Mediterranean .............................................. 96
TH1-14 Child’s life – between play and work ......................................................................................................................... 103
TH1-15 Charting Otherworlds: Cemeteries as Cult Sites ........................................................................................................ 110
TH1-16 Lithic raw materials in prehistory: sourcing, network distribution and use ............................................................ 118
TH1-17 Placing medieval buildings in context ......................................................................................................................... 127
TH1-18 Social dynamics and transformation during the Late Neolithic and Bronze Age .................................................. 135
TH1-19 Food choice and alimentary practices: from meals to diet and from site to region – the difficulties and benefits of examinations of diet and dietary practices .................................................................................. 141
TH1-20 Regional and chronological development of fishing: its significance in past economies and their socioeconomic dynamics .................................................................................. 150
TH1-21 After the flames. New approaches to the study of the Medieval sites with funeral cremations in Northern and Eastern Europe .................................................................................. 157
TH1-22 Mesolithic dwelling structures: from methodological approaches to archaeological interpretation ......................................................................................................................... 164
TH1-23 Weights and weighting from the Bronze Age to the Middle Ages: perception, context, use ......................................................................................................................... 169
TH1-25 Boated by bog bodies ......................................................................................................................................................... 175
TH1-26 The life biography of artefacts and ritual practice ................................................................................................................. 178
TH1-27 What is it all worth? Material possessions and value in past societies .................................................................................. 185
TH1-28 Religious landscapes in the North Atlantic .......................................................................................................................... 195
TH1-29 Visualizing the Past. Exploring Meaningful Approaches in Interpreting the Archaeological Record through Illustrations and Reconstructions .................................................................................. 199
TH1-30 Evaluating the importance of oseous tools in the Early Holocene: a European perspective ......................................................................................................................... 206
TH1-31 “Barbarians” of Eastern Europe in the system of cross-cultural interactions ......................................................................................................................................................... 210
TH1-32 Iron making techniques and social change in the medieval and early modern Europe ......................................................................................................................................................... 222
TH1-33 Methodologies to investigate social, cultural and demographic processes in migration periods ......................................................................................................................................................... 226
TH1-34 What If We Build This Here? Spatial Patterns, Community Organization, and identity at Nucleated Settlements ......................................................................................................................... 229
TH1-35 Build with mud brick in the Neolithic: technical constraints and cultural choice ......................................................................................................................................................... 240

3
MANAGING THE ARCHAEOLOGICAL HERITAGE
TH2-01 Papers and Round Table Discussion: Successful Partnerships: Recognising and Improving Heritage Management in Landscape and Rural Land Use Policy and Practice ........................................... 247
TH2-02 Heritage Crime: Definition, Development and Duty-based ethics ............................................. 249
TH2-03 Telling Stories: Archaeological Museums, Heritage and Research Centres: Achievements and Future Prospects .......................................................... 253
TH2-04 Debating the value of archaeological material found by the public ............................................. 259
TH2-05 Archaeology and the EU Environmental Impact Assessment Directive (EIA) .................................. 263
TH2-07 25 years later: Changes and conjectures in preventive (development-led) archaeology in former ‘Eastern’ Europe ......................................................... 266
TH2-09 Management of Archaeological Sites in Turkey: Prospects and Future ......................................... 274
TH2-10 After 1990: a turning point in the guiding principles of rescue excavations and its impact on scientific research ................................................................. 277
TH2-11 From Archaeological Past to Living Landscapes ........................................................................... 283
TH2-13 Giving New Meaning to Cultural Heritage: The Old and the Young in Past Societies ................. 292
TH2-14 When working with many partners – A holistic approach to archaeological research and heritage management .......................................................... 297
TH2-16 Illicit trafficking of Cultural Heritage: different strategies to fight it ........................................... 301
TH2-17 Climate Change and Heritage: Impact and Strategies .................................................................. 304
TH2-19 Preventive Archaeology, Scientific Research and Economic Development .............................. 310
TH2-20 I see something that you can’t see. Multidisciplinary Approaches in Archaeological Tourism ........ 319

THEORETICAL AND METHODOLOGICAL PERSPECTIVES IN ARCHAEOLOGY
TH3-01 Practical skills training in archaeology ....................................................................................... 331
TH3-02 From the Colosseum to Palmyra. Appropriation and Ownership of Archaeological Heritage in a Global World ................................................................................... 332
TH3-03 Open Access and Open Data in Archaeology: Following the ARIADNE thread ............................... 336
TH3-04 Theoretical frameworks, methods, and sources to study the development of medieval societies in Europe and the Mediterranean world ........................................... 341
TH3-05 Feminism and materiality in archaeology ................................................................................... 345
TH3-06 Revealing the Making and Breaking of Community in European Prehistory ................................ 352
TH3-07 Political Strategies for the EAA .................................................................................................. 355
TH3-08 Untold Stories: Technology, Linearity and Complexity in Archaeological Thought ....................... 358
TH3-09 Communities united: linking archaeological record and conceptual approaches on social cohesion .............................................................. 363
TH3-10 House and Household – making room for history ......................................................................... 369
TH3-11 Archives and archaeology – sources from the past, tools for the future ........................................ 372
TH3-12 How to make a Field School Work: managing issues, dangers, opportunities ......................... 382
TH3-13 Creative Archaeologies II – continuing theory and practice in a new branch within the field of Archaeology ......................................................................................... 388
TH3-14 Settlement Variability and Socio-Economic Process .................................................................... 392
TH3-15 The Atlantic Arc and its Neighbours in the First Millennium AD: Framing New Perspectives ........ 398
TH3-16 Towards digital infrastructures for open, participatory, public archaeology ................................. 401

ARCHAEOLOGY OF THE BALTIC REGION
TH4-02 Archaeology of hillforts in the Baltic ............................................................................................ 403
TH4-04 The materiality of cultural contact. The Bronze Age in the Baltic Sea region ................................ 409
TH4-05 Sketches of first millennium rural communities: integrating dwelling spaces and the dead ........ 415
TH4-06 Cultural Encounters: Perspectives on Mobility and Cultural Identities in the Baltic Sea Region 4000-2300 BC .................................................................................. 420
TH4-07 Prehistoric Foragers in the Northern Forea Zone: Isotopic Clues to their Chronology, Diets and Mobility ........................................................................................................... 426
TH4-08 Safe behind walls and ramparts? Archaeological perspectives on Early Modern Fortifications in the Baltic and Scandinavian region ......................................................... 431

ARCHAEOLOGY AND THE BALTIC REGION
TH4-09 Past animal and human relationships around the Baltic ................................................................ 438
TH4-10 Tradition, Innovation and Networks – Metal Working Around the Baltic Sea from the Bronze Age to the Middle Ages .................................................................................. 447
TH4-11 Bioarchaeology in the Baltic Sea region .......................................................................................... 453
TH4-12 Western Balts in the Iron Age ........................................................................................................ 462

SCIENCE AND MULTIDISCIPLINARITY IN ARCHAEOLOGY
TH5-01 Investigating Geochemical and Petrographic Methods for Flint Identification in Archaeology .................................................................................................................. 467
TH5-02 Unraveling the formation processes of the archaeological record by integrating environmental archaeology and traditional field excavation ................................................. 474
TH5-03 Biocultural approaches to archaeological diet, mobility and disease ............................................ 488
TH5-04 Cremated remains in archaeology: new methods, findings, and interpretations .............................. 499
TH5-05 Plague in diachronic and interdisciplinary perspective .................................................................... 506
TH5-06 New Knowledge About Past Societies Through the Use of Advanced Remote Sensing Techniques .......................................................... 513
TH5-07 Food for thought – interdisciplinary responses to dietary studies in bioarchaeological research ........ 523
TH5-10 Geoarchaeology of Prehistoric settlements: new insights into use of space, dwellings, household activities and land use ............................................................................. 532
TH5-11 “Gnu directions in R-chaology”: innovations in the use of Free and Open Source Software (FOSS) to achieve an open archaeology ................................................................. 544
TH5-12 Methods of metal detecting survey in archaeology .......................................................................... 547
TH5-13 Novel approaches to understanding palaeoenvironmental and palaeoclimatic change, and their impact on past human and animal behaviour ........................................ 550
TH5-14 Human land use and subsistence history over the Holocene ................................................................ 558
TH5-15 New developments in isotopes and trace element analyses .......................................................... 570
TH5-16 Multiproxy Wetland and Lake Environmental Archaeology: From Niche Construction Theory to Ancient DNA .......................................................................................... 577
TH5-17 Archaeology, Language and Genetics: In Search of the Indo-Europeans ........................................ 584

ARCHAEOLOGY WITHOUT BORDERS
TH6-01 Ties that bind. Relationships between the movement of raw materials and the movement of artisanal knowledge across Europe 2000-1500 BC ........................................................................ 593
TH6-03 Blurred borders? Making pottery and cultural interaction in Neolithic and Eneolithic Europe ........ 598
TH6-04 Entangled migration. The materiality of diaspora communities in the medieval and early modern world ........................................................................................................... 608
TH6-05 Transcending Borders in Later Prehistoric Europe ........................................................................ 613
TH6-06 “Dusty” Archives and Archaeology: Old Information – New perspectives ........................................ 622
TH6-07 Forum Medieval Archaeology in Europe and Lithuania .............................................................. 632
TH6-08 Resource: Conduit; Agent: Water and the development of the human geography of Central Asia ......................................................................................................................... 633
TH6-09 Social and gender complexity through the archaeological remains in home housing ................ 636
TH6-10 Fueling crafts and industries in medieval and post-medieval Europe ............................................... 639
TH6-11 Setting waterscapes in Europe: the archaeology of Neolithic and Bronze Age pile-dwellings .... 643
TH6-12 Landscapes beyond the Borders of Space and Time. Change and Continuity in Economy, Road Systems, Settlements and Perceptions ...................................................... 657
TH6-13 The archaeology of medicine, hospitals and healing in northern Europe .......................................... 669
TH6-14 In Heaven as it is on Earth: Archaeological Traces of Minority and Radical Religious Ideas within Social Identities in the Middle Ages ........................................................................ 676
TH6-15 Archaeology for “convivencia”, Archaeology after Saint Denis ..................................................... 680
TH6-16 Experimental archaeology: techniques and technologies .............................................................. 684
TH6-17 Committee On Professional Associations ..................................................................................... 692
SFS Special Session on Brexit ................................................................................................................. 694
GS General Session ................................................................................................................................. 695
Index of Authors ....................................................................................................................................... 698
Archaeological material remains and archaeological records of the past are the main sources of archaeological research. Growing ranges of methodological tools now help to interpret that record. The way in which we use these methods to define and decode the past predetermines the way in which the scientific goals of our research agendas are achieved. New research questions in archaeology go far beyond those posed using traditional methods of analysis and treatment of material cultural remains. An absence of evidence is no longer considered evidence of absence. Research now seeks to identify the potential cultural ‘presence’ behind absence in the record. Using new techniques, new analytical equipment and new procedures, in appropriate theoretical frameworks and contextual proxies, archaeological research continues to refine its interpretation of the past.

This theme is inviting sessions dealing with technology, survey, typology, statistics, ethnoarchaeology, geoarchaeology and other scientific applications to the research of archaeological evidence and artefacts. It is also a call for papers that address new questions to the technological records now available to research. What is sought is a diachronic perspective that reflects new methods of decision-making in research strategies and our understanding of social agency in archaeology. This theme seeks to address our cognitive 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 throughout prehistory and early history in order to re-assess the changing role of birds in human societities. Although birds – qua animals – are increasingly regarded as historical agents in their own right, the focus of the session lies on the intricate interplay of bird and human lifeworlds and behaviours. Through a diachronic approach the session hopes to explore how different modes of human existence are reflected in the nature of human-bird interfaces, and in particular how different forms of human society and spatiality as well as different characteristics of bird behaviour and appearance imprint themselves in the materiality of human-bird relationships.

Since the intersection of human and bird activities can be expected to differ severely from that of humans and other animals – for example mammals – the investigation of the human-bird interface ultimately provides a fresh angle to expose some new and so far unexplored aspects of past human earthly dwelling.

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

**TH1-01 Abstract 01**

**Archaeo-Ornithology: Figurations of Human-Bird Interfaces in Prehistory and Early History**

*Thursday, 1 September 2016, 9:00-16:00*

**Author**: Kost, Catrin, LMU Munich, Munich, Germany (Presenting author)

**Co-author(s)**: Hussain, Shumon, Faculty of Archaeology, Leiden, Netherlands

**Keywords**: animal turn, archaeo-ornithology, human-bird interfaces

**Presentation Preference**: Oral

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

Archaeology – despite having entered the ‘age of symmetry’ and ‘post-humanism’ and regardless of paradigmatic shifts and re-orientations such as the ‘animal turn’ – has so far largely ignored birds and their contributions to human lifeways. This session is dedicated to fill that void. It aims to trace the construction of human-bird interfaces throughout prehistory and early history in order to re-assess the changing role of birds in human societities. Although birds – qua animals – are increasingly regarded as historical agents in their own right, the focus of the session lies on the intricate interplay of bird and human lifeworlds and behaviours. Through a diachronic approach the session hopes to explore how different modes of human existence are reflected in the nature of human-bird interfaces, and in particular how different forms of human society and spatiality as well as different characteristics of bird behaviour and appearance imprint themselves in the materiality of human-bird relationships.

Since the intersection of human and bird activities can be expected to differ severely from that of humans and other animals – for example mammals – the investigation of the human-bird interface ultimately provides a fresh angle to expose some new and so far unexplored aspects of past human earthly dwelling.

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

**TH1-01 Abstract 02**

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

*Author*: Hussain, Shumon, Shumon T., Universiteit Leiden, Leiden, Netherlands (Presenting author)

**Co-author(s)**: Hussain, Shumon, Faculty of Archaeology, Leiden, Netherlands

**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 anthropomorphic 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 relationships in this part of the Gravettian world. By drawing together available evidence for the specifics of the various environmental, climatic, vegetational, faunal and
The aim of this paper is to explore the complex interaction between humans and birds in the Cordeliers-Guemelltia-Karanovo VI communities (ca. 4500-3800 BC) from the Balkans (Romania and Bulgaria).

Thus, our investigation will cover the bird figurines iconography study from some key-sites in the target area (e.g. Meriuta, Sutuna, Vlašiare, Yunatata, 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.

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

THI-01 Abstract 05

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

Author - Profesora Lazarch, Maria, Universidad de Cadiz, Cadiz, Spain (Presenting author)
Co-author(s) - Ramos-Gil, Antonio, Universidad de Cadiz, Cadiz, Spain
Co-author(s) - Gonzalez, Juan Luis, Universidad de Cadiz, Cadiz, Spain
Co-author(s) - Malla, Manuela, Universidad de Cadiz, Cadiz, Spain
Co-author(s) - Cruz, Maria Jose, Universidad de Cadiz, Cadiz, Spain
Keywords: birds rock painting, megalithic tombs, Recent Prehistory
Presentation Preference - Oral

Birds were not one of the favourite issues in order to be used for rock paintings in the Iberian Peninsula. In spite of that, in the southern end of Spain it is focused the greatest amount of this kind of artistic manifestations. We are referring to the shelter of Taü de las Figuras (Benalup-Casas Viejas, Cadiz), which represents the 99.94% of the total of bird representations of postpalaeolithic rock paintings in the Iberian Peninsula. In 17 square meters of wall surface 962 pictograms are represented, of which 208 are birds. In it, social groups in the Recent Prehistory capture the rich ecosystem of the former Laguna de la Janda and where birds had a leading role. Our research group has recently made a detailed investigation of these paintings, in which we have been able to ascertain the existence of very diverse species and scenes of ethology of these birds and an extraordinary biodiversity, as a whole. Other scenes, even though they could be related to waterbird hunting, it is also possible that they have a shamanic ritual significance, in connection with life and death.

By the same token, systematic prospecting works in the surroundings allow us confirm the existence of a spatual pattern, where shelters with rock paintings are domicated 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 Ceanni), due to its complex exchange of intervisibility between shelters with paintings (Arco and Tajo de las Figuras) and megalithic tombs.
TH1-01 Abstract 08
Human-Bird interfaces in Han-dynasty China as displayed through kingfisher-ornaments in graves

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

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

TH1-01 Abstract 09
Symbolic side of human-bird interfaces in the Late Iron Age (800-1200/1250 AD) Eastern Baltic

Author - Kuriso, Tuuk, ZBA/Tatkin University, Schleswig, Germany (Presenting author)
Keywords: Eastern Baltic, Late Iron Age, pendants
Presentation Preference - Oral

The aim of this paper is to discuss bird-related pendants in the Late Iron Age (800-1200/1250 AD) Eastern Baltic. The symbolic side of the human-bird relationship is usually approached through folklore, emphasising the importance of a Baltic-Finnic creation song in which the world is formed of eggs laid by a bird. In order to expand the current scope of interpretations, one should focus on archaeological materials and find contexts. Bird-related pendants are the most direct evidence in the material culture that indicate the special role of birds in these peoples' worldview. Most of these pendants are cast alloy specimens that vary in style and presumably depict several species. The rest of the pendants were made from wing bones and claws. They have been found in various contexts: settlements, grave sites, hearths, infusion burial and cremation burial, which points to broad usage and multifaceted meanings. In this paper bird-related pendants are juxtaposed with folklore along with a comparison of species. Additionally, interpretations that connect these finds to status and Finno-Ugric identity will be considered briefly.

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

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

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

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

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

Wild birds are intrinsically associated with our perception of the Middle Ages. They often feature in heraldic designs, paintings, and books of hours; few human activities typify the medieval period as much as falconry. Almost obsessively portrayed in the famous Bayeux tapestry (illustrating the Norman victory at the Battle of Hastings) falconry has an especially prominent role in the Italian Middle Ages, not in small part due to the famous book by the Emperor Frederick II, which remains an important source of information on the subject. Prominent in medieval iconography, wild birds feature less frequently in written sources (as they were rarely a subject of trade transactions or legal documents) but they can be abundant in archaeological sites. The subject is somewhat underexplored and this paper aims to contribute filling this knowledge gap by highlighting the nature of wild bird exploitation in Italian medieval societies, ranging from their role as food items to their ritual, status and symbolic importance. A survey of about 20 Italian medieval sites, dated from the 5th to the 19th centuries, reveals the occurrence of more than 100 species (certainly an underestimate of the real original number). Considerations on the habitats and behaviours of the identified bird species, coupled with parallel information from historical sources, help our understanding of the role they played in medieval societies. Though some species were almost certainly hunted for food, as revealed by butchery marks on bones, others were more likely to have produced feathers or acted as hunting companions and status symbols. The paper will also contrast urban and rural evidence and investigate any apparent diachronic change.

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

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

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

TH1-01 Abstract 13
Beyond the bones: a multi-strand approach to past perceptions of avian associations

Author - Pitt, Jacqueline, Bournemouth University, Bournemouth, United Kingdom (Presenting author)
Co-author(s) - Feider, Michael, Bournemouth University, Bournemouth, United Kingdom
Keywords: Bird interactions, Material culture, Zoological studies
Presentation Preference - Oral

Birds form an important part of human society, culture and subsistence both now and in the past. Combining analysis of faunal remains and material culture at archaeological sites, this paper examines attitudes towards birds between the Bronze Age...
Changes in goose and duck use from the early Roman period until the post-medieval period in Britain

Author - Poland, Ged, The University of Sheffield, Sheffield, United Kingdom (Presenting author)
Co-author(s) - Dr. Grau Sologeato, Idoia, The University of Sheffield, Sheffield, United Kingdom
Co-author(s) - Dr. Corbinio, Chiara, The University of Sheffield, Sheffield, United Kingdom

Abstract 14

Geese and ducks have been used in Britain from late prehistory until the present day for a multitude of reasons including for their meat, their eggs, their feathers, and their fat. We know from historical sources that the economic and cultural significance of these animals has changed over time since the Roman occupation of Britain, but archaeology can greatly improve our understanding of the use of these birds. The problem is that these animals are rarely meaningfully discussed within an archaeological context. This is because their osteological remains are particularly difficult to identify to the species level, even when a comprehensive comparative reference collection is used. This has prevented some key questions from being addressed satisfactorily. This project comprises a systematic study of the examples of depiction and use of birds and value its symbolic role in the Roman Culture.

This paper discusses the changing use of these birds from the early Roman period until the post-medieval period in Britain by comparing osteological assemblages from several sites, including a range of different site types and geographical locations. Key changes in the use of these birds will be discussed using four main proxies: differences in taxa frequencies, the relative frequency of immature bones, variation in butchery practice, and changes in size through time. Taxon identification was achieved using recently developed morphometric criteria at the University of Sheffield. This paper was possible due to combining results from two post-doctoral projects and one PhD project at the University of Sheffield.

---

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

Oral Presentation - Poster

Title: To what extent are birds important in Roman gardens?

Author - Mr. Uraneva, Valeria, Institute for Classical Archaeology, Prague, Czech Republic (Presenting author)
Keywords: birds, Roman garden, avian, mosaic, fresco

Abstract 16

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

---

Food for the Dead or Symbol of Rebirth?

Culinary offerings and incubated eggs from a Roman cemetery

Oral Presentation - Poster

Title: 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

Abstract 15

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

Yet, not all faunal remains could be interpreted that easily as food. This was particularly the case for two goose eggs found in a woman’s grave. Because it was assumed that the egg’s function is closely connected to the state in which they were placed inside the burial - originally fresh eggs rather served as meal, incubated remains possibly had a symbolic, e.g. (re)birth related significance - they were more closely analyzed. Slight differences of an eggshell’s microstructure can provide evidence of its potentially incubated state. These modifications result from the avian embryo resorbing calcium from the shell to form its skeleton. However, although the recovered eggs of Ober-Olm showed signs that could indicate incubation, these alterations were not uniform and resulted in a mosaic pattern of incubated and not-incubated spots. This could possibly have a taphonomic origin. It is for this reason that we are now conducting experiments with unfertilized eggs. Due to better excavation techniques eggshell is also increasingly discovered on other archaeological sites. A deeper understanding of the taphonomic processes influencing their microstructure is vitally important in order to distinguish between the shells of hatched birds and eggs that served as food.

---

Interpreting the Archaeological Record

Title: Interpreting the Archaeological Record

Artwork: pattern of incubated and not-incubated spots. This could possibly have a taphonomic origin. It is for this reason that we're now closely analyzing the significance - they were more closely analyzed.

Inside the burial - originally fresh eggs rather served as meal, incubated remains possibly had a symbolic, e.g. (re)birth related presentation to the community attending the funeral.

The late Roman site of Ober-Olm provides a fascinating example of unusually rich food offerings in a funerary context. Alongside the 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 project comprises a systematic study of the examples of depiction and use of birds and value its symbolic role in the Roman Culture.

This paper discusses the changing use of these birds from the early Roman period until the post-medieval period in Britain by comparing osteological assemblages from several sites, including a range of different site types and geographical locations. Key changes in the use of these birds will be discussed using four main proxies: differences in taxa frequencies, the relative frequency of immature bones, variation in butchery practice, and changes in size through time. Taxon identification was achieved using recently developed morphometric criteria at the University of Sheffield. This paper was possible due to combining results from two post-doctoral projects and one PhD project at the University of Sheffield.
TH1-02 Abstract 01

PETRIFICATION PROCESSES IN (PRE-)HISTORY

TH1-02 Abstract 02

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

TH1-02 Abstract 03

When did eternity end?

TH1-02 Abstract 04

‘Petrified’ societies? An Egyptianological survey

TH1-02 Abstract 05

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

While we as session organisers are far from agreeing upon what ‘Petrification’ means, we were trying to circumscribe it with terms such as ‘consolidation’, ‘stabilisation’ and ‘classic style’, referring to changes both in societies and material culture. That said, we know that notions of stability, consolidation and steadiness are deeply linked to our understanding of both time and material culture. So this introductory talk addresses notions of time, change and material culture in archaeology: From traditional culture-historical archaeology to post-processualism and from spatial to cultural and other turns to currently scientifically driven archaeology we as archaeologists need to connect the material culture we study to notions of transformation and development. How do we conceptualise periods of stability or ‘equilibrium’ vs. periods of change or break-up? How do we conceptualise periods at all? Which conceptual steps to we take to infer the petrification of a society from the archaeological record? Do we perceive petrification as one instant in a succession of distinct instants or as a process within a process?

Petrification leads not only to physical boundaries in the landscape, but also to differentiation of concepts in our minds. 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.

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.

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

TH1-02 Abstract 03

When did eternity end?

TH1-02 Abstract 04

‘Petrified’ societies? An Egyptianological survey

TH1-02 Abstract 05

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

Petrification leads not only to physical boundaries in the landscape, but also to differentiation of concepts in our minds. 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.

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

TH1-02 Abstract 03

When did eternity end?

TH1-02 Abstract 04

‘Petrified’ societies? An Egyptianological survey

TH1-02 Abstract 05

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

Petrification leads not only to physical boundaries in the landscape, but also to differentiation of concepts in our minds. 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.

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.
The quantitative analysis of the observable materials can suggest different attention was paid 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/abesence 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. This case can be rival practice.

The theoretical situation and a model of analysis will be explained through cases involving a trans-Mediterranean perspective (i.e. both in Africa and in the Near East and in Mediterranean Europe), during the Neolithic and up to the Bronze Age.

TH1-02 Abstract 06

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

Author - Dr. Díaz-Guardamino Uribe, María, University of Southampton, Southampton, United Kingdom (Presenting author)

Keywords: Iberia, Later Prehistory, Sculpture

Presentation Preference - Oral

Stone is regarded as “eternal” in many cultures, past and present, across the globe. It appears to be frequently linked to monumentality and ancestor worship, phenomena that are seemingly universal. When investigating stone in the context of human-related events and processes, its durability instantly turns into a central issue in the articulation of social, cultural, and historical narratives. In this context, stone is considered to play a key role in the so-called “petrification” or “solidification” of social structures and institutions. Indeed, if compared to human temporality, stone has the potential to work across much longer-lasting temporal frames. However, while stone persists it is not eternal neither static nor stable. Stones are in constant flux. They transform as they interact with a wide variety of agents, from air, water, and acids, to living organisms, including microorganisms, animals, or people. As they interact, stones engage in the crafting of complex meshes of social relationships with varying temporariness (and spatialities).

This paper seeks to explore the temporality of stone and its role in the late prehistoric communities of western Iberia through the analysis of their sculptural traditions. Western Iberia is home to an extraordinary collection of stone stelae and statue-menhirs that were placed in the landscape and represent life-size human bodies decorated with weapons and elements of dress and adornment.

Much attention has been given to the classification and cultural affiliation of stelae and statue-menhirs based on their iconographies. Less attention, however, has been put on the very nature of these stones as monuments, on their persistence and the role of this property in the fashioning of iconographic standardization, the long-term crafting of these sculptural traditions and, ultimately, the social reproduction of the communities associated with them. This paper will address these issues while also taking into account the variability and constant changeability of these stones, their workings within short-term temporalities and cultural immediacy.

TH1-02 Abstract 07

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

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

Presentation Preference - Oral

We are now finally in a position where migrations can be documented rather than debated. This has lifted an interpretative barrier from archaeology, in much the same way as C14 dating did when it was introduced. The new freedom can instead be invested in properly theorizing and interpreting local processes of migration, integration and assimilation, which has been an underdeveloped field of research. By integrating recent results from archaeology, isotopic tracing and historical linguistics this will in turn allow us to formulate better-founded models for the interaction of intruding and settled groups, the formation of a new material culture, and consequently also for language dispersals and language change. In this paper I forward a theoretical model that accounts for the formation of Corded Ware cultures as a result of local adaptations and interaction of migrant Yamnaya populations with still existing Neolithic cultures.

TH1-02 Abstract 08

Tracing “petrification” in prehistoric architectural processes

Author - Dr. Romaniewicz, Tanja, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Keywords: architectural analysis, prehistoric architecture, Scottish roundhouses

Presentation Preference - Oral

Even ephemeral archaeological remains of prehistoric buildings can be studied as evidence for architectural processes. In this definition, these processes started with thinking and shaping prehistoric space via a structure, but did not stop once this structure was built. Prehistoric architecture was also transformed by unplanned events during construction, use and abandonment of the buildings. Architectural analysis reads these deliberate and fortuitous processes from pits and postholes, 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 architecture, described in this section as “petrification”. It starts with recent work on Bronze Age timber roundhouses in northeast Scotland. This identified reactive, shape shifting architecture responding to the activities and energies profound on form seem, however, unrelated to the building materials as such practices can also be recognised in roughly contemporary Scottish stone houses. Yet by the Iron Age, external shape and form seemingly had solidified. The paper will map such developments of architectural concepts through time and space, from organic and dissolve planes to mechanical, rigid structural shells. Drawing on later prehistoric and early medieval evidence from Britain, Scandinavia and the continent for comparison, architectural analysis will trace such patterns of “petrification” within the domestic sphere.
activity in the alpine uplands (suggested mainly by palaeoenvironmental proxy data), as if the earliest pastoral groups exploited much more ephemeral shelters. This observation opens a series of interpretative questions: What triggered the construction of these permanent structures during the Bronze and Iron Age? Was it just for functional reasons or was it also a way to facilitate ‘possession’ of this ‘marginal’ environment? In this paper the origin of dry-stone pastoral structures in the Alps will be investigated. The available archaeological data will be revised, to assess the chronology of their diffusion and to find structural similarities that might mirror functional and cultural aspects. Insights from recent ethnoarchaeological investigations will enable the role of these structures within the upland landscapes to be inferred.

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

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

Keywords: archaeology of urban centres, Greek colonization, urbanism

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

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

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

TH1-03 Abstract 03
Londoners at play: an archaeological exploration of Medieval and early modern bear-baiting

Author - Dr. O'Regan, Hannah, University of Nottingham, Nottingham, United Kingdom (Presenting author)

Keywords: bear-baiting, blood sports, London

Presentation Preference - Oral

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

TH1-03 Abstract 04
King Louis XIII’s real tennis court at Versailles

Author - Dufour, Jean-Yves, INRAP, Villenomble, France (Presenting author)

Keywords: game, tennis court, Versailles

Presentation Preference - Oral

This paper gives an account of some of the archaeological discoveries made in the courtyard of the Great Commons of the chateau, where the King’s real tennis court (jou de paume) was excavated. The architectural project was the work of Philippe Le Roy, architect to the King. Architectural features of Louis XIII’s tennis court are described, and compared with textual data. Three of the four inner walls are bordered by covered galleries for public enjoying the game. The shape given to the room for the court of paume game has allowed historians to propose two hypotheses for the medieval origins of the game. It may have originated in the cloisters of monasteries or in the streets. The change in the flooring of the real tennis court, terracotta and stone paving first, then stone paving only from 1639 onwards, gives some information on the way the points were scored.

The ancillary structures associated with the tennis court are a water cistern, latrines and the house of the maître paumier or game master, an artisan who managed and maintained the court and acted as an umpire for the game. He also made balls and rackets. This changing room was also used for rest and refreshments, to play dice.

What was the place of real tennis in medieval and modern society? The exercise of power has its’ implications for the body: it must be robust. The games of the Middle Ages were rough with hard physical contact: wrestling, soule, hockey, jousts and tournaments still fill contemporary popular imagery. Tennis is the first such game to be developed which does not involve direct contact with the opponent. In 1596, Francisco Gregory d’Lemni observed in Paris, two hundred and fifty fine and well furnished tennis courts, which … give livelihood to some seven thousand people: guardians, masters of games, linesman, racket makers, …

This was indeed the golden age for the game. Playing tennis requires dexterity, strength and reflection, even strategy, all qualities which are required of a prince. By bringing out the qualities of a player, by allowing a privileged moment of interaction between those who play, tennis is also an art of the Court. Under Louis XII, tennis was considered as an art by the purists and as a game by the populace, but not yet as a sport.

TH1-03 Abstract 05
Ludic space in the late Middle Ages cities on the south Baltic coast

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

Keywords: amusement, space, toys

Presentation Preference - Oral

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

TH1-03 Abstract 06
Whose game is it anyway? Mobility, cultural transfer and board games

Author - Hall, Mark, Comhairle nan Eilean Siar, Isle of Benbecula, United Kingdom (Presenting author)

Keywords: cultural transfer, mobility, play

Presentation Preference - Oral

This paper will explore board games as a facet of play. In the context of mobility, mobility at both the micro (on the board) and the macro (within and across cultures) scales. Here that mobility is characterised not as diffusionism but as the complex cultural interaction between and across societies and cultures, exploiting trade, military conquest, gift giving and religion and ritual as avenues of exchange and interaction. Considering board games within the framework of mobility raises some key issues around their social significance: how and why did they spread? Movement is, of course, essential to games (as it is to all play) both for the games to work - they are at the core of the ‘capacity to move’ that is the definition of its mobility in its Latin origin - and for them to spread across cultures and between peoples. Like other forms of play they allow the individual to perceive their existence through performance, combining physical, sensory reactions with mental agility and strategic thinking. At their most successful they can produce a feeling of flow. Reflexively they allow an escape from the world as a means of re-defining it (including re-locating the individual within it). Board games speak to the mobility of people - physically, intellectually and spiritually. They help to reify and crystallise rituals and social orders whilst at the same time opening up a space for encounters that might change things. They are both of this world and allow movement away from it or the making of new worlds. Board games are both structured by and structure mobility. The next move is yours!

TH1-03 Abstract 07
The Mystery of the Shield-Biting Warders.

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

Keywords: cultural transfer, mobility, play

Presentation Preference - Oral

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

The paper’s second goal is to reveal how the two early Scandinavian chess versions and the autochthonous game of filettlafl interacted in order to produce such marvellous artifacts like the Lewis Chessmen.

TH1-03 Abstract 08
The attraction of the exotic - Whalebone gaming pieces from early medieval Scandinavia

Author - PhD student Henrius, Andreas, Uppsala University, Uppsala, Sweden (Presenting author)

Co-author(s) - Gustavsson, Rudolf, SAU, Societats Archæologiska Uppsalians, Uppsala, Sweden

Keywords: gaming pieces, raw material, resource colonization

Presentation Preference - Oral

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

The paper’s second goal is to reveal how the two early Scandinavian chess versions and the autochthonous game of filettlafl interacted in order to produce such marvellous artifacts like the Lewis Chessmen.
This paper concerns Scandinavian gaming pieces from the Vendel and Viking periods (c. 550-1050 CE). The main focus is on the raw materials used but also on questions of chronology, typology, and distribution. Gaming pieces can be made of a variety of items, such as glass, amber, ivory, walrus tusk and horse teeth. Most commonly, however, gaming pieces are described as being made of unprocessed bone and antler. A recent 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 produce.

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

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

TH1-03 Abstract 09
Early medieval Sandomierz Chess Set: confrontations 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 „Sandomiarskie” 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 archeological works were carried out on some other parts of the hill. On October 8/1962 in the south-western corner of the homestead some unique find was uncovered, namely, an almost complete set of chess with only three pawns missing, made of antlers in the Arabic style, now known as “The Chess of Sandomierz”. This is definitely not only one of the most interesting discoveries of the Early Middle Ages chess pieces on the territory of Poland but also one of the rarest examples on of the territory of the Early Middle Ages Europe. The area then examined, not widened due to the requirement of finishing the works, allowed to determine the place of the discovery as a small, modest half undug. In the material gathered at that time the chess figures were the only such spectacular finds, others being ceramics from the 12th century.

Such a picture of the circumstances of finding The Chess of Sandomierz was dominating in the professional literature for long years constituting a source of many hypotheses and speculations on the reasons of finding the figures on such an unexpected site. The hut being the only dwelling place in this area did not belong to any settlement and was a phenomenon of its own difficult to be interpreted. It was supposed to be a poor half 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 characteristic of the items uncovered both in the hut with the chess and its neighbourhood seems to confirm the above mentioned interpretation of this case. The remains look like a manor house rather than an ordinary dwelling place. The discovery of a vast homestead or a manor house which was burnt down around the mid-13th century and which might have been the seat of the local elite was very surprising. This offers a new opportunity of interpreting the mysterious presence of The Chess of Sandomierz in this place.

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

Author - Włochka, 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 archeological sites in Central Europe. These small objects, made mostly of bone, are dated between the 12th and 19th centuries and are generally identified as board game pieces, but it’s unknown how exactly and in which types of games they were used. The following poster presents new interpretations of their function based on their material characteristics, but also on their archeological context and on the current knowledge about medieval games.

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

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

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

Keywords: Ethnicity, Material Culture Studies, Mobility

Presentation Preference - Oral

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

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

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

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

Keywords: Ethnic identity, Migration, Mobility

Presentation Preference - Oral

Although studies on mobility have been the focus of greater attention in archaeology over the past 150 years, they evolved in constant tension with those emphasising 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 much more open notion of mobility, which needs to be considered as a dynamic process and not only as a vector of material change. Migrations may be large-scale phenomena, taking place independently from local or individual agency, as well as more subtle types of demic spread, taking place on a small-scale and depending on individual agency. Likewise, the traces left behind by people on the move need to be addressed by combining different disciplines and analytical methods. The shift from generalising models to a multi-scalar notion of mobility brings on the table new questions and a new research agenda. By gathering a wide array of case studies, crossing

22
Interpreting the Archaeological Record

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) - 2AMPETTI, D., Istituto Italiano Paleontologia Umana, Rome, Italy
Co-author(s) - Et ali, et ali, Et ali, Et ali, Italy

Keywords: material imagination, mobility dynamics, traditions

Presentation Preference - Oral

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

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

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

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

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

Keywords: Mesolithic, Neolithic, Transition

Presentation Preference - Oral

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

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

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

In this paper I will present some of the possible reasons for the spread of the Neolithic, and how some of the autochthonous populations responded, using a few case studies from the Neolithic and Adriatic Basins. Sicily and the Balkans, from which we can glean an insight into the highly complex human behaviour and response, when faced with the phenomenon.

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

Author - Tarasov, Alexey, IWPP KRC of RAS / ILHM KRC of RAS, Petrozavodsk, Russian Federation (Presenting author)
Co-author(s) - Manninen, Mikael, University of Oulu, Museum of Cultural History, Department of Archaeology, Oulu, Norway
Co-author(s) - Hakkilä, Pasi, University of Helsinki, Department of Geosciences and Geography, Helsinki, Finland
Co-author(s) - Anttila, Niko, National Board of Antiquities, Archaeological Field Services, Helsinki, Finland
Co-author(s) - Pasanen, Petri, National Board of Antiquities, Archaeological Field Services, Helsinki, Finland
Co-author(s) - Zobkov, Mikhail, Institute of Northern Water Problems, Karelian Research Centre of RAS, Petrozavodsk, Russian Federation
Co-author(s) - Pottakhin, Maxim, Institute of Northern Water Problems, Karelian Research Centre of RAS, Petrozavodsk, Russian Federation

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

Presentation Preference - Oral

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

Recent finds from the earliest Mesolithic site in Finland – Jijarsava 1, which is located some 250 kilometres west of the western shore of Lake Onega, reveal one interesting aspect of the earliest colonization of the region. The excavation assemblage contains artefacts made of a rock most closely resembling lidite – a low grade metamorphosed siliceous sedimentary rock. In northeastern Europe deposits of this rare rock type can be found only on the north-western shores of Lake Onega in Russia. Investigation of these samples with the aid of a variety of petrological laboratory methods suggest an origin of this material in the Lake Onega Idlida deposits.

Maintenance of contacts between the first colonizers of Eastern Fennoscandia with the southern core areas is evidenced by the presence of first artifacts in the majority of the earliest sites, and this aspect has been already pointed out by many researchers. Our new findings show that resources of the recently inhabited territories were also involved in the flow of materials within the appearing interaction networks.

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

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

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

Keywords: LBK, migration, Neolithic

Presentation Preference - Oral

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

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

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

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

Presentation Preference - Oral

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

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

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

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

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

We use the gallery grave at Torbjörntorp as a model site for investigation of mobility. Here the individuals analysed all date to around 1800 BC cal, the second half of the Late Neolithic period in Scandinavia. However, the megalithic graves have been used for more intensive research over a long time and even though the skeletal remains are fairly well preserved, the burials over a long 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 isotope results can be used for discussing mobility patterns.

Using the combined knowledge gained from archaeology, isotope analysis 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 StudentCruduo, Maurizio, University of Groningen, Roma, Italy (Presenting author)
Co-author(s) - Jacobsen, Jan Kinberg, Ny Carlsberg Glyptotek, Copenhagen, Denmark
Co-author(s) - Matthaus, Paola, Universiteit Utrecht, Groningen, Groningen, Netherlands
Co-author(s) - Saxjøer, Sine Grohe, The Danish Institute in Rome, Roma, Italy

Keywords: Cultural Encounters, Greek Colonization, Pottery

Presentation Preference - Oral

Since the beginning of times, people have relocated and migrated in search for better conditions, raw materials, or in order to obtain trade relations with foreign markets and cultures. For decades, ancient migrations were primarily explained based on the occurrence and quantities of imported artefacts, thus reaching interpretations that were aligned with the later ancient written sources. This was the case with the Greek migrations in Southern Italy, often referred to as the ‘Greek colonisation’. The present paper will focus on different waves of Greek migration in Southern Italy, taking the area of the Sibaritide as local 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 Tempone della Motta in the first half of the 8th century BC. This coexistence entailed a shared and mixed cultural framework at the site, which is visible in the pottery production as well as in the production of textiles taking place within the sanctuary at the site. In late 8th century BC, the Sibaritide witnessed another Greek migration, that is, the Achaean migration, which most famously led to the foundation of the so-called colony of Sybaris. Based on analyses of knowhow and techniques within textile and pottery production, including anthropological as well as archaeometric analyses, the present paper seeks to shed light on the possibilities and limitations of these methods for identifying migration in the archaeological record.

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

Author - PhD candidate Rautron, Anna, La Trobe University, northcoast, Australia (Presenting author)
Co-author(s) - Tytov, 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 one way process but also the maintenance of distinct cultural and ethnic identities through the careful selection of cultural features. In order to develop more comprehensive models of cultural contacts and the relationships established between indigenous Sicilians and Greek during this specific period, a multi-disciplinary approach was adopted. This paper focuses on the archaeological analysis of materials discovered in southeastern Sicily and in particular from the indigenous habitation site of Monte Ficochito. The site is a critically important case study to understand 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 graves as a consequence of these cultural changes. The archaeometric analysis allows us to recognize different clay fabrics, to distinguish Greek imports, Sicilian copies and adapted designs as well as entirely new Sicilian forms. The archaeometric method permits us to recognize different cultural material objects. The results will be extremely advantageous in tracking indigenous activities, adaptation and adoption and elucidate how the Greek immigration impacted Sicilian societies and local culture. The goal of this study is also to look beyond the cultural material, in order to understand the technology of pottery production and the possible coexistence of imported and local fabrics within a given chronological horizon. In this specific archaeological context, the application of archaeometry, in combination with archaeological and anthropological methods, is a successful method to understand the social, ideological and material interactions of the indigenous Sicilian community of Monte Ficochito with the Greeks.

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

Author - Bobina, Bogdan, County Museum of History and Archaeology Maramures, Baia Mare, Romania (Presenting author)
Co-author(s) - Suteu, 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 Maramureș and Bukowina. The field survey carried since 2012 and their results so far indicate at least two major palaeo-trails crossing a glacial valley that reaches 1550 m a.s.l. in the Rodnei Mountains and the other one further north in the Maramureș Mountains. The archaeological finds, consisting ofolithic and pottery, are confirming a human presence at these altitudes, from Paleolithic until the Roman period. Through the use of specific archaeometric analyses the activity within the area will be presented as a search for raw materials by the prehistoric populations followed in the post-Roman period by the establishment of a trade route gateway between the two sides of the mountains.

TH1-04 Abstract 13
Origin and Development of Balbals Stelae

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

Keywords: Kurgan, Romas, Stele

Presentation Preference - Poster

Kurgan stelae, also known as babas (Russian: камень дедушка, Polish baby kameleon; Kyrgyz: ыңыз кул) are anthropomorphic stone statues or slabs set atop, within or around kurgans (barrows/tumuli), in kurgan cemeteries or special sacred zones on the territory of the Eurasian Great Steppe and surrounds areas. This custom is in practice from the Eneolithic to almost Modern Times. The term babal came from a turkic word meaning ancestor or grandfather. The earlier examples of these statues are associated with Sredny Stog and Yamna (Pit Grave) cultures and dated to the 4th millennium BC. Although this custom existed incessantly on many various territories from the Eneolithic to Modern Times, however it was extremely popular in scythian culture, Turkic Kaganate and among Cumans (Kipchaks). Usually these objects were memorials honouring the dead, but there were some exceptions. For most periods kurgan stelae represent mostly males, however in the Kuman Period female stelae were very popular. Babals commonly depict warriors holding weapons and drinking horns or bowls. There might also depict so many other items like belts and tools. Probably from babals may derives other kinds of stelae, for example: deer stones, Bakhtiarli 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 artifact and socio economic and the investigative methodology of babals.

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

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

Keywords: Alps, neolithic, pastoralism

Presentation Preference - Poster

This poster will present the first results of the zooarchaeological analysis of several neolithic settlements located in the upper part of the Rhone Valley in Switzerland and in the Northern French Alps and dated between 5500 and 2200 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)

**Co-author(s):**
- Alessandro, L., University of Groningen, Groningen, Netherlands
- Attanai, P.A.J., University of Groningen, Groningen, Netherlands
- Fast, M.H., University of Leiden, Leiden, Netherlands
- Savvik, J., University of Groningen, Groningen, Netherlands
- Van Gorp, W., University of Groningen, Groningen, Netherlands
- Van Leusen, M.H., University of Groningen, Groningen, Netherlands
- Van Gorp, W., University of Groningen, Groningen, Netherlands
- Sevink, J., University of Groningen, Groningen, Netherlands
- Dr. Doorenbosch, Marieke, University of Leiden, Leiden, Netherlands (Presenting author)
- PhD Evgenyev, Andrey, Orenburg State Pedagogical University, Orenburg, Russian Federation (Presenting author)

**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 core, an archaeological investigation of the differences and similarities in ceramic typology between Latium Vetus and Campania, petrographic and isoype analysis. The first results of landscape reconstruction and potential excavation sites will be presented in the poster.

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

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

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

**Presentation Preference - Poster**

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

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

The funeral ceremony (not typical for the Late Bronze Age position of the buried, the subordination of the two forcibly sacrificed people to the “main” scleton) 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, wae, beads are typical for Sintashta culture.

The funeral ceremony and inventory of Maloyuldashevo I 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.

The most likely, one of the construction horizons of the Maloyuldashevo settlement belongs to the Sintashta period. This is supported by analogies with the settlements of the Sintashta-Petrovka period and the Sintashta pottery in the cultural layer of the settlement.
TH1-05

ALL THAT GLITTERS IS NOT GOLD:
NEW APPROACHES TO SUMPTUOUS BURIALS
BETWEEN WESTERN EUROPE AND THE EURASIAN STEPPE

Saturday, 3 September 2016, 14:00-18:30
Faculty of Philosophy, Room 209

Author: - Dr. Ferriolou, Manuel, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s): - Prof. Johnson, James, University of Chicago, Chicago, United States of America

Keywords: Sumptuous Burials, Identity, Power, Performance

Presentation Preference - Regular session

Ostentatious burials remain the primary means by which we understand socio-economic structures and elite/non-elite binary identity formations. Seemingly, such burials lend themselves to easier modes of quantification as well as qualification given their ‘obvious’ connections between numbers, types, and placement of grave goods as well as treatment and/or modification of the deceased individual’s body with status. In addition, the focus of this session is to consider alternative theoretical frameworks and methodologies that have great potential to tease out more nuanced information regarding the mortuary practices from Western Europe to the Eurasian steppe. In particular, we are interested in combinations of certain theoretical frameworks and robust methodologies, including analyses such as isotopic, metallographic, GIS-based, ceramic, and multivariate statistics to name only a few. Ultimately, we seek not to necessarily overturn inferences regarding ostentatious burials and elite status. Rather we encourage session participants to more critically interrogate how these formulations are arrived at and what new information can be gleaned from burials and burial mounds that have already been excavated and analyzed.

TH1-05 Abstract 01

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

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

Keywords: sumptuous burials of women Bronze Age Iron Age

Presentation Preference - Oral

Ostentatious burials are often injected within a specific chronological framework in a time-space related cultural units. Thus archaeologists often analyze sumptuous graves in relation to burials of seemingly lesser importance from the same cultural unit either in order to reconstruct social hierarchies or in order to distinguish specific cultural traits. In these traditional analyses of ostentatious burials female graves have played little or no role. Analyses which have dealt with female graves dating between the 2nd and first half of the 1st millennium BC has heavily concentrated on gender specific topics such as the importance of costumes in relationship to age-groups, regional identities and social standing. Sumptuous female graves are however rarely thematized systematically.

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

TH1-05 Abstract 02

Scarcity and dearthness: 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

Presentation Preference - Oral

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

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

The focus of my presentation will be to present a methodology developed during my PhD of ranking funerary data, so as to detect social structures. This work is based on a database from more than 1000 graves with 721 elite’s graves, from Late Bronze Age to La Tène B, spread over north-eastern France, southern Germany, 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 etic, qualitative approaches make it possible especially to develop a gender approach and a characterization of social structures and their evolution on a long term perspective.

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

Presentation Preference - Oral

The emergence of the lavish burials known as Hallstatt chieftains’ or princely graves reflects one of the most noteworthy developments in Early Iron Age Europe. These elaborate elite burials of the Hallstatt C period contain beautiful weaponry, bronze vessels and elaborately decorated wagons and horse-gear and are found primarily in Southern Germany and Bohemia. There is, however, also a small cluster of these burials in the Low Countries. These Dutch and Belgian burials contain many of the same objects, all imports from the Hallstatt Culture in Central Europe. New finds and research, including the comprehensive study of all the Dutch and Belgian burials offer new insights into these graves. The elite burials of the Low Countries not only contain far more Central European ‘princely’ paraphernalia than thought, they also appear to contain items different enough to challenge 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 burrial 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 intended in these ostentatious graves of the early Hallstatt Period in the Low Countries and those of the early Hallstatt Culture in southern Germany, western Austria and Bohemia also testify large-scale contacts as well as a potentially increasing social differentiation (or at least its representation in burials). The relationships that must have existed between these and other areas in the early Hallstatt period can be addressed and considered on a large scale. In this paper we present the possibilities of analyses by looking at the ostentatious burials from the Low Countries both from the regional and the international perspective, an approach that leads to a much better understanding of the performance of those exceptional burials.

TH1-05 Abstract 04

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

Author - Dipl.-Rest. Ebinger-Rist, Nicole, Landesamt für Denkmalpflege, Esslingen, Germany (Presenting author)
Co-author(s) - Krausse, Dhr., Landesamt für Denkmalpflege, Esslingen, Germany

Keywords: Burials of change, modern excavation, Sumptuous Burial

Presentation Preference - Oral

The Heuneburg on the upper Danube is among the best-researched (intensively investigated) settlement centres of the Hallstatt culture in Central Europe. While the research regarding the settlement structures of the Heuneburg and the surrounding area has been a key element in German Early Iron Age research since the 1990s, careful exploration of the apotropaic burial grave has been relatively neglected in the last 70 years. The targeted excavation of a richly endowed child’s burial site, and of a site in which princesses were interred, south of the Heuneburg, has given powerful testimony to the fragmentary state of our knowledge of the sociopolitical processes and structures of the 6th century BC. The presentation offers an exemplary look into the manner in which a
single ceremonial tomb discovery, and the related research, has employed modern methods of excavation and analysis to decisively
in the forest-steppe zone of Eastern Europe
burials of the Chernyakhov culture, even at its highest level examples. There are simple common explanations for this difference:
burial grounds of Chernyakhov culture. They were found by chance and were considered hoards. Only one of them (Bol’shoy
of individual objects belonging to a prestigious culture of the time are known too. These complexes are not associated with
By the beginning of the Great Migration period Chernyakhov archaeological culture (its last stage) was spread in the left bank of
Keywords: Iron Age, mortuary analysis, multiple burials
Presentation Preference - Oral
In his 1984 survey of multiple burials in prehistoric Europe Claus Oeftiger noted that burials containing more than one individual are
in the earliest hoarded 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/male, female/female and male/child or female/child combinations are also known. These configurations have traditionally been interpreted as reflecting familial relationships but recently excavated burials indicate that more complex associations for this category of burial are likely. We argue that the early Iron Age elite multiple burial category should be re-evaluated with reference to ethnographic analogy, archaeological evidence from other areas of west-central Europe, and recent burials excavated in the vicinity of the early Iron Age Heuneburg Hilfort.

TH1-05 Abstract 06
Discernable Traces in Textil Archaeology
Author - Dr. Bandi-Burgess, Johanna, Landesamt für Denkmalpflege, Eastling, Germany (Presenting author)
Keywords: mortuary ceramics, princely grave Hochdorf-Eberdingen, Textile Archaeology
Presentation Preference - Oral
The uniqueness of the late Hallstatt-period textile assemblage from the princely grave at Eberdingen-Hochdorf (SW-Germany) is not limited to its highlighting textile manufacturing as an economic focus in this region, providing differentiated insights into burial customs, the sequences of mortuary ceremonies or insights into concepts about the afterlife. It is relevant that this finds assemblage demonstrates that textiles can only function as indicators of socio-economic structures when they are considered within their archaeological context. This means that conclusions, based on isolated observations of details of manufacturing technique but disregarding the context, remain of limited value with regard to contents and may even be questionable. Deriving from the function of the textiles in the grave the question is not only for what and with which intention this function was associated, but also whether it is at all sensible to distinguish between burial textiles and the textiles of the living.

TH1-05 Abstract 07
Barbarian chief’s “secret” burials in the forest-steppe zone of Eastern Europe
Author - Doctor Shcheglova, Olga, Institute for the History of the Material Culture, St. Petersburg, Russian Federation (Presenting author)
Co-author(s) - Raduch, Oleg, Institute of Archaeology RAS, Moscow, Russian Federation
Keywords: burials, prestigious gold objects, Great Migration period, sumptuous complexes, kings and military leaders
Presentation Preference - Oral
By the beginning of the Great Migration period Chernyakhov archaeological culture (its last stage) was spread in the left bank of the Dnieper 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 Kamensot) was published by L.A. Matsulevich in 1934. The study how complexes have been discovered reveals that they are the burials. In Bol’shoy Kamensot burial was in a stone crypt, built at the base of a high bank of a creek, which flows into the river Sutsha. Mapping of all finds indicates their close relationship with the sources of large creeks flowing in deep canyons and at the same time associated with the watershed of rivers system. 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:

TH1-05 Abstract 08
Commoners and Elites in Southeast Kazakhstan: Kurgans and Settlements of the Iron Age society
Author - Dr. Chang, Claudia, Sweet Briar College, Sweet Briar, United States of America (Presenting author)
Co-author(s) - Tourcotte, Perry, Sweet Briar College, Sweet Briar, United States of America
Presentation Preference - Oral
The spatial distribution of Iron Age kurgan and settlement sites from the Talgar alluvial fan (ca. 550 sq km) derived from survey reconnaissance and Soviet period site inventories indicates the presence of both commoner graves and elite kurgans. The GIS database of the Talgar sites also includes valuable information such as the natural hydrological system, dated geological terraces, and other important topographic features. Our goal is to model a socio-natural system that describes the Iron Age socio-economic agro-pastoral system and its demographic components. In addition to understanding the relationship between the natural physical landscape and a mortuary and settlement landscape, we also wish to set the foundation for understanding social hierarchy and the nature of commoner-elite relations.

TH1-05 Abstract 09
Miniaturization in the Production of Funerary Aesthetics in the Pontic Iron Age, ca. 600 - 300 BC
Author - Dr. Johnson, James, University of Chicago, Chicago, United States of America (Presenting author)
Keywords: Aesthetics, Burials, Iron Age
Presentation Preference - Oral
Funerary performances, including processions, construction of burial mounds, and the deposition of bodies and grave goods, are the primary means by which Iron Age social structure continues to be investigated and inferred. However, the scholarly focus on single massive burial mounds and the amount of iron age grave goods, such as found at Alexandropol or Sokolka in present-day south-central Ukraine, skews 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 elite mortuary practices critically explore how a different approach utilizing the lens of production (in a performative/theatrical sense) might highlight often hidden political facets of burial in Iron Age contexts, as well as more broadly.

TH1-05 Abstract 10
1. “Chronological”, when the sumptuous burials attributed to later Hun period (the period D3, ie, 450-470 / 480’s 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 Dnieper 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, mortuary and general cemetery in protected, perhaps a sacred place. The exceptional volume and value of inventory corresponds to the rank of the deceased in his lifetime. The concept of “center of power” is applicable to the simple “princes” and “military chiefs” burials.

TH1-05 Abstract 11
Decoration and Function of Late Hallstatt-Pontic Metalwork: The Case of the Gräfenberg Bone Comb
Author - Dr. Pachal, Anna K., Institute of Archaeology, University of Warsaw (Presenting author)
Keywords: Metalwork, decoration, late Hallstatt-Pontic, bone comb
Presentation Preference - Oral
more importantly sensual, engagements carefully crafted in grander scale cosmologies of meaning that were themselves crucial constituents of social and political life in the Pontic Iron Age, ca. 700 - 300 BCE. During the course of this presentation, I explore the remarkable nature of Pontic Iron Age funerary performances through a careful disassembly and reassembly of grave good assemblages, mound construction, and mortuary landscapes. Utilizing data gleaned from a modest population of mounds and burials from across south-central Ukraine, I focus in particular on how burials and funerary activities were produced and intentionally manipulated as means to legitimize, and reinforce, the cosmological and social ordering of Pontic Iron Age communities through carefully designed and produced aesthetic displays.

TH1-05 Abstract 10
The Kurgans of Scythian Nobility in the Eurasian Steppes
Author - Dr. Habil. Ochir-Goryaeva, Maria, Institute of archaeology Tatrstan academy of sciences, Kazan, Russian Federation (Presenting author)
Keywords: Eurasia, kurgan, Scythian epoch, nobility
Presentation Preference - Oral
Several thousands of burial sites of the Eurasian steppe dating to the Scythian epoch are associated with a number of archeological cultures of the Scythian type. Their funeral rite has been examined in a number of special papers and monographs, which were largely based on a comparative study of kurgans between each other in terms of their particular parameters. The present paper proceeds from a comparative study of all graves and other elements within one and the same mound in terms of their depth and arrangement to other, as well as in terms of their orientation, according to the cardinal points, on the mound map, i.e. their planigraphy. To my knowledge, this is the first attempt of this kind. The undertaken analysis of the planigraphy of the kurgans is based on the data concerning every component of a mound earthwork such as walls, tunnels, bridges, stone embankments, etc., as well as every grave of one and the same kurgan, including central and secondary burials, horse interments and those of servants, servants and human sacrifices. Such complex earthwork structures, as well as numerous central and secondary burials are to be found only in the case of kurgans of the royal class, hence these are of major importance for planigraphical analysis. The graves located in the mounds have been analyzed to produce a number of their arrangement patterns with respect to the spatial representation of kinship and family hierarchy of the Scythian society and to the their system of geographical orientation in terms of cardinal points. Importantly, the regional differences in the spatial arrangement shown on the kurgan planigraphic profiles seem to be associated with the meridian and lateral spatial arrangement of the entire burial constructions in terms of cardinal points. Moreover, if these are taken into consideration, it is no longer possible to maintain the idea of the Scythian-Siberian unity of the archeological cultures of the region, where in fact one deals with two distinct cultural communities. Also, as the present work has shown, there is a logical association between the spatial arrangement of the constructions in terms 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)
Co-author(s) - Rubinson, Karen S., ISAW--New York University, New York, NY, United States of America
Keywords: borderlands, Eurasia, Silk Road
Presentation Preference - Oral
Much has been made of the social and economic exchanges across the Silk Road, from Afghanistan in the west and China in the east. In the later first and early second millennium CE. Literacy 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 boundary territories of the state polities, where material evidence exist to the local region surrounded and shrouded the elite. This paper will consider what message the assorted choice of non-local or non-locally inspired grave deposits, revered in the first millennium CE by looking closely at two assemblages, one in Afghanistan and the other in China. Across Eurasia at this time foreign imagery, technologies and mortuary practices and uses of artifacts derived from all sectors of that far-flung exchange network and we shall argue that this denotes and documents a cosmopolitan attitude about displaying one’s identity at death. 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 textile technologies were imported into the region from Western Asia and China. At the far eastern edge of this indirect traffic of goods and technologies, in the later Han Dynastic Protectorate of the Western Regions, anoth- er set of burials, known from the excavations of Guoxi, and particularly in the tomb of Cheshi, at Baise, Xingjiang, 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 easterly burial practices and items from dynastic China.

The comparison of these two settings will document the preference for exotic typical of borderlands, especially in times of expansion, political ambition and unrest. Bearing in mind that the choice of materials for one’s tomb is deliberate and not incidental, we argue that the individuals buried were probably less powerful 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 - Dr. Habil. Ochir-Goryaeva, Maria, Institute of archaeology Tatrstan academy of sciences, Kazan, Russian Federation (Presenting author)
Keywords: Bronze Age, Eurasia, Multivariable 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 correlation and correspondence analysis on a selection of archaeological burial grounds. The sites belong to different cultural complexes, like Aibanho, Sintaaha and Andronovo and are dated to the Middle and Late Bronze Age.

My poster is about the results of multivariate statistical methods used in archaeology to establish a relative chronology for cemeteries which are demonstrated here from 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 allows that the multivariate statistics can lead to a more detailed understanding of the development and dynamics in Eurasian Bronze Age funeral archetypical and to a better understanding of cultural and social differences.

TH1-05 Abstract 13
Origin of the Polychrome Style Jewellery
Author - MA Janik, Paweł, Antiquity of Southeastern Europe Research Centre University of Warsaw, Legionowo, Poland (Presenting author)
Keywords: Hums, Migration Period, polychrome
Presentation Preference - Poster
One of the most characteristic element of the humric culture of the Migration Period is the polychrome style jewellery. In this style the surfaces of gold or gilded objects were decorated with precious or semi-precious stones (like almandines, red garnets, carnelians) or pieces of glass, which usually were red. These ornamental elements were set within strips of gold foil, often surrounded with granulation or filigree. There was another version of this style called cloisonné in which the glass or gemstones were set in compartments of soldered strips of metal foil, separated with wire, over a strip of metal foil. The polychrome style is used in ornamenting dress accessories, horse equipment, diadems, weapons, jewellery and other things. Many researchers have divergent opinions about provenance of this jewellery style. According to popular opinion, the polychrome style was not typical only for European Barbaricum like Carpathian Basin, West Europe or Black Sea region, but it existed also in Central Asia, north-west modern China and even Korean Peninsula. Moreover the polychrome style not occurred first time during the Migration Period, but much earlier. There are also some polychrome decorated artefacts from East Europe (Sarmatian culture) and Central Asia (Saka-Iliouan culture and Kerkeli culture) dated to period between III century B.C. and II century C.E. These artefacts are very similar to polychrome style ornamented objects from the Migration Period. Some scholars (Artemiev 1971, 1988) claim that “barbaric” peoples had not such technology and knowledge to shape and stick gemstones and glass pieces to a gold foil. Other scholars (Schmieder 2002: 237-58) affirm that polychrome style evolved from the helenistic jewellery traditions. The problem is that there are some polychromelike decorated artefacts from Iran and central Asia dated to Achaemidian Period! My poster consist of investigations of the origin and development of the polychrome style jewellery.

TH1-05 Abstract 14
Origin of the Polychrome Style Jewellery
Making sense of the inconspicuous 99% of urnfield graves

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

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

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

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

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

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

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

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

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

Over 3000 wooden or such composite artifacts were found while investigating the territory of Vilnius Lower Castle. The findings which are conditionally attributed to hygiene segment compose small part of this collection and encompass combs and mirror frames. During the investigation 23 combs and 17 mirror frames were found, as well as 7 findings related with their production: blanks and wastes. These artifacts represent the period of the 14th - 16th centuries. The majority of combs are made of boxwood (Buxus sempervirens L.) but two items made of Rosaceae (subtribe Malinae) wood were also determined by the wood anatomy analysis. The combs are rather uniform, double-sided, rectangular with 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 sin of pride in certain territories in contrast with the liturgical rules or rules of some monastic orders, the mirrors have been considered the symbol of vanity for a long time.

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

Author: PhD student, Archeo-climate Ramanauskienė, Skaita, 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 Palatine. The territory of Vilnius Lower Castle consists of the Upper Castle and the lower territory on the Vilnius River. The use of space at the castles of Östergötland province, Sweden

Author: Dr. Rundkvist, Martin, Umea University, Säffle, Sweden (Presenting author)
Keywords: Medieval, Europe
Presentation Preference: Oral

This study is dedicated to introduce the reader to currently in Lithuanian archaeology not widely analyzed archaeological findings group – iron nails. In 2014, during archaeological excavations of Klaipėda castle, more than 13 000 units of nails and their fragments were collected, which, according to cultural layers, corresponds with Medieval and Modern ages. The most recent archaeological investigation has been done 2008-2009 and 2014-2016 especially concentrating on the research of the surroundings of the castle. During the restoration works and archaeological excavations done within these 126 years there has been collected diverse find material containing bunch of objects related to military life. Because the historical sources related to Raseborg are quite fragmentary, these are objects crucial source material when trying to interpret the military aspects of the life in the castle. Raseborg was definitely a stronghold that needed to be equipped in case of attacks or sieges. About this 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 closely.

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

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

Author: Dr. Rundkvist, Martin, Umea University, Säffle, Sweden (Presenting author)
Keywords: Medieval, Sweden
Presentation Preference: Oral

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

Author: Dr. Rundkvist, Martin, Umea University, Säffle, Sweden (Presenting author)
Keywords: Medieval, Sweden
Presentation Preference: Oral

This study is dedicated to introduce the auditor with currently in Lithuanian archaeology not widely analysed archaeological findings group – iron nails. In 2014, during archaeological excavations of Klaipėda castle, more than 13 000 units of nails and their fragments were collected, which, according to cultural layers, corresponds with Medieval and Modern ages. The most recent archaeological investigation has been done 2008-2009 and 2014-2016 especially concentrating on the research of the surroundings of the castle. During the restoration works and archaeological excavations done within these 126 years there has been collected diverse find material containing bunch of objects related to military life. Because the historical sources related to Raseborg are quite fragmentary, these are objects crucial source material when trying to interpret the military aspects of the life in the castle. Raseborg was definitely a stronghold that needed to be equipped in case of attacks or sieges. About this 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 closely.

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

THI-06 Abstract 09

Post Medieval Archaeology in Azerbaijan

Author: PhD Khalilli, Fariz, MIRAS Social Organization, Agsu, Azerbaijan (Presenting author)

Keywords: Archaeology, Azerbaijan, Post Medieval

Presentation Preference: Poster

Study of post medieval monuments of Azerbaijan is novelty in archaeology. Scientists have not been considering post medieval studies as object of archaeology but concerned it to ethnography. The ethnographers nevertheless did accept their obligations like studying the uncovered remnants. Researches in Post Medieval Agsu town since 2010 March made valid post medieval archaeology. Medieval Agsu town was the largest city of Azerbaijan for the number of population and the area capacity in post medieval age. The town which was built in 1735 by Nader shah covered 40 hectare area. The town exposed to attacks and had been capital of Shirvan khanate. On March, 2010 Agsu Archaeological Expedition of ANAS Institute of Archaeology and Ethnography conducted excavations in Medieval Agsu Town under guidance of Professor Gafar Jabiyev and PhD Fariz Khalilli in initiative and with support of MIRAS Social Organization in Support of Studying of Cultural Heritage. During archaeological explorations for three years till 2010-December 1,5 hectare space was studied, and fortress walls, handcraft estates, houses, mosque, bath-complex, ice-house, stores, water and sewerage lines were revealed. Over 8000 gold, silver, copper, pottery, glassware, stone and bones were inventorized being found from 5 excavation sites; a part handed to museums and kept in Medieval Agsu Town Archaeological Tourism Complex. Along with Medieval Agsu Town, the perspectives of archaeological study of Shusha and Shaki cities were learnt as well.

THI-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.

THI-07 Abstract 02

Object deposition in Central Norway c. 2350-500

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

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

Presentation Preference: Oral

Object deposition, mainly in wetland environments such as bogs and lakes was practiced in Central Norway throughout the Late Neolithic and the Bronze Age (c. 2350-500 BC). In the Bronze Age, it was one of the northernmost regions in Europe where the deposition of metal work took place. However, although bronzes constitute a significant amount of the total number of objects deposited, the group as a whole is characterized by a variation in objects and materials and includes objects made of birch bark, amber, flint and wood alongside objects of bronze and gold. Among these finds we find a well-preserved wooden stool with Bronze Age carvings from Hustad 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.
The area of present-day Finland was a crossroads of Scandinavian and Russian bronze networks throughout the local Bronze Age (1900/1600–500 BCE). Even though the archaeological assemblage of Bronze Age bronze artefacts is not abundant in the area (numbering less than 200 specimens), relatively well-established relations to eastern and western bronze centres are indicated by both imported bronze objects (predominantly of Scandinavian origin) and local casting of Russian bronze artefact types. Interestingly, while many of the bronze object types encountered in Finland were obviously connected with long-distance networks, their deposition patterns appear highly localized even within the area of Finland. Celts and daggers seem to have been especially prone to change their roles when travelling between eastern and western or southern and northern Finland. Such regional differences are discernible not only in differential treatment and significance of specific artefact categories but also in general relations between bronze technology, mortuary rituals and ritualization of landscape. This paper suggests that local ritual practises of Stone Age origin had substantial impact on deposition patterns of bronze artefacts in Bronze Age Finland. Continued influence of Neolithic ritual frameworks may also have contributed to the general scarcity of bronze in the area throughout the Bronze Age.

During my PhD I was able to study and to characterize the hoard practice of five European regions during the Bronze Age. These areas were chosen according to their high number of hoards and their affiliations to different cultural complex or their strategic position. The study focused on: Western Carpathians, the Mittelelbe-Saale-Gebiet (central Germany), Denmark, the Burgundy doors (Switzerland, Eastern France, south-eastern Germany) and the Armorican Massif (Western France). The single finds were included in the study, since they are part of the same practice as the so-called metal hoards. The aim of this PhD was to study the high variability of these hoards and single finds in space and time, in order to better understand this social practice. In this way, different statistics have been used to get a GIS has been developed for each region. 1555 hoards and 2776 single finds have been analysed.

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

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

Regarding to several criteria, some of them appeared earlier in Western Carpathians and the MESG than in Denmark and the Armorican Massif. In this way it seems that some modalities of the Bronze Age hoards practice took place first in Central Europe before spreading to Northern and Western Europe. Besides, this hoard and single find practice necessarily reflects individual and collective initiatives.
TH1-07 Abstract 09
Fragmentation as a common feature in European Bronze Age hoarding

Author - Dr. Marazek, 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 „Brucherzorte“ (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 (“Gusserz”).

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

Author - Prof. assist. Jirět, Luboš, Institute of Archaeology of CAS, Prague, Czech Republic (Presenting author)
Co-author(s) - Dr. Šumberová, Radka, Institute of Archaeology of CAS, Prague, Czech Republic
Keywords: Bronze Age, hoards, Landscape
Presentation Preference - Oral

One way to answer questions concerning the selective deposition of metalwork in the Bronze Age is the detailed analysis of the place where metalwork assemblages were deposited. A territorially and chronologically defined sample of such assemblages – hoards – was deliberately selected. We assume that if hoards had differing functions in different periods and/or territories in the past, the data obtained through a single analysis of a de facto heterogeneous set of objects would affect the quality of the final interpretation. Our chosen method, the targeted analysis of a closely-defined set of objects, helps eliminate this risk, and allows the subsequent testing of the newly-obtained data on an ever wider set of objects that seem to show identical features, but have different territorial or chronological attributes. We therefore focused on 31 Urmfield 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 illustrates 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, Ondrej, University of South Bohemia, Ceske Budejovice, Czech Republic
Keywords: copper ingots, Early Bronze Age hoards, South Bohemia
Presentation Preference - Oral

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

TH1-07 Abstract 12
Urmfield Period hoards in South Bohemia

Author - Dr. Marazek, Regina, Landesamt für Denkmalpflege Sachsen-Anhalt, Halle, Germany (Presenting author)
Co-author(s) - John, Jan, University of South Bohemia, Ceske Budejovice, Czech Republic
Keywords: metalurgy, South Bohemia, Urmfield 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 (Urmfield Period), which are summarized in this presentation. The region of interest is South Bohemia, from where 23 metal-hoards from the Urmfield Period (i.e. B2-C2 – Ha B3) were known 15 years ago. In the last years the number increased to 81 currently registered hoards. In comparison with the older finds, the most of new hoards are exactly located and in many cases documented in situ, which help us to interpret them, sometimes with the help of chemical and archaeobotanical methods. The new finds bringing extraordinary quantitative as well as qualitative enrichment of our knowledge of this Bronze Age phenomenon. Unfortunately only a small % part of new metal-hoards are deposited in museum collections, while many others disappeared without any documentation in private collections.

TH1-07 Abstract 13
O’ mighty Danube. The deposition of swords in rivers in the area of middle Danube

Author - Mgr., PhD Bača, Martin, Department of Archaeology, Faculty of Arts, Comenius University, Bratislava, Bratislava, Slovakia (Presenting author)
Keywords: Danube, deposition, swords
Presentation Preference - Oral

The area of middle Danube was a focal point for introducing swords at the end of the Early Bronze Age. It is well known, that since their introduction they occupied a special place in material world, as is the case of Aps type swords. These first swords, as soon as they started to be produced were deposited in rivers. This special type of deposition practice was soon followed by swords of Bos type family, when the only place you could find a sword in a river was in grave or river. This practice continuously gained momentum and reached its climax at the beginning of the early umfeld period (8th-9th centuries BU) when, there is almost complete lack of other types of metal deposits in the area of middle Danube during this period. It is most striking when compared to hoard-rich areas in central and north Slovakia, Czech lands as well as eastern Hungary, where swords were among other types of hoards primary deposited in “dry land”. This paper will be based on my personal long-term, not yet published research. Since hallmark studies by W. Torbrügge, 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 constructivism: Selective deposition of metal in the BA Carpathian Basin

Author - Szwarczyński, Jakub, Hungarian Academy of Sciences, Budapest, Hungary
Co-author(s) - Plaginy, Tünde, Northwestern University, Department of Anthropology, Evanston, United States of America (Presenting author)
Keywords: Bronze Age, Carpathian Basin, selective deposition
Presentation Preference - Oral

The study of Bronze Age metalwork in Hungary has a long history; however, it has focussed mostly on typological and chronological issues, within a traditional cultural-historical interpretative framework. The famous hoards of the Hajdúszombati, Tolnánmedi...
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 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 involved 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 - Hvoje, Katalin, Institute of Archaeology, Zagreb, Croatia (Presenting author)
Keywords: Carpathian Basin, Late Bronze Age, settlements
Presentation Preference - Oral

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

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

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

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

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

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

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

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

Based on the metal 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 groups of hoards containing only a single type of artefacts. The preferred objects are the socketed axes of the sickles. Not only finished good quality artefacts were chosen for deposition; stone moulds used to obtain the bronze artefacts were also included in hoards. Two of the hoards contains moulds which were used to produce socketed axes widely distributed in the region, while the hoard from Pobit Kamak contains over 30 stone moulds, including some for objects not known to exist in this area in positive.

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

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

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

Characteristic feature of the European continent population in Bronze Age is metal works deposition in form of hoards. Upper Tisa Region (UTR) is one of the richest in Europe on the finds of “hoards”: nearly 600. From the topographical point of view it’s very various. UTR, especially the eastern part, is rich in different mineral resources (such as salt, gold, copper). Deposition of bronze Hoards in UTR, especially in the eastern part of UTR, suggests that during Bronze Age, local population, by an insignificant exception, the cemation 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 (Baden culture, Cotofeni culture) and in the Early Bronze Age (Mako culture, Nirség culture) the tradition of deposition was not continued. The Middle Bronze Age (BA2) is a new stage of hoarding in UTR. Culturally they belong to Ottoman-Füzesabony culture and early phase of Suciul de Sue 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 as a result of internal development of local Bronze Age society; 2) tradition of deposition arose as a result of external contacts of local tribal elites. Development of this tradition continuing with maximal distribution in periods from BD Ia1 (Suciul de Sue and Gava cultures) and till the end of Bronze Age.

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

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

As the title of this session proposes, the deposition of metalwork is one of the defining characteristics of the European Bronze Age. Superficially, certain types of objects were seemingly deposited in similar ways across supra-regional areas, suggesting widely shared socio-ideological practices. Scratching below the surface, however, reveals a myriad of complex and competing traditions both across space and through time. In particular, regions rich in raw metal sources (e.g. copper, gold and silver) exhibit marked differences in depositional practices to those areas that lacked locally-available ores. This paper will draw upon a large relational database created for a research project on the Atlantic World 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 selection and associations, object biographies, contexts of deposition and their wider landscape relationships.

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

TH1-07 Abstract 20

Structures and function of Bronze Age deposition in Ireland

Author: Dr. Becker, Katharina, University College Cork, Cork, Ireland (Presenting author)

Keywords: Bronze Age, Deposition, Ireland

Presentation Preference: Oral

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

TH1-07 Abstract 21

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

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

Keywords: Bronze Age, Deposition, Middle Rhine Valley

Presentation Preference: Oral

The Middle Rhine region is one of the best known examples of the excessive use of depositional practices of valuable objects in rivers. To understand this phenomenon, the focus from the river itself and their back swamps needs to be broadened to the adjacent area in the hinterland of Germany, France, Belgium and Luxembourg. In this region, we have the opportunity to compare a variety of depositional practices in wet and in dry contexts that have so far never been studied together. This will not only readjust the previous one-to-one focus on river finds, but also reveals 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. Welsby, 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 surrounding metalworking. By combining the results from a range of collection processes including archaeological excavation and metal detecting survey we can explore the content and context of these differing deposits, and question the social processes and implications behind the choices that led to these variations. This evidence for the deposition of bronze moulds, smithing tools, casting waste and ingots will provide a valuable comparative dataset to the evidence for the deposition of finished, used and decommissioned 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): - Dr. Welsby, Leo, University of Bristol, Bristol, 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 hypocronological frameworks based on patterns of association within hoards. With the realisation of the selective nature of Bronze Age depositions however, it became clear that the role of bronze extended beyond its value as a commodity buried for safe-keeping and storage, and that deposition was part of a long standing social practice represented in the archaeological record by buried metal objects. The landscape context where the structured depositions took place, must have been viewed as suitable for that purpose by individuals and communities involved in the act. As such we might expect to see an inherent structure in the depositional settings of metalwork, preserved by the topography and the relationship to environmental and cultural landscape features, exhibited by the findspots.

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

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

TH1-07 Abstract 24

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

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

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

Keywords: Bronze Age Metalwork, River Trent, River Witham

Presentation Preference: Oral

In this paper we examine a specific example of selective deposition, Bronze Age Gewässerfunde from the River Trent, in the English East Midland, as compared to the regional assemblage for Central England. The Trent has a major assemblage of more than 170 metal artefacts known from water contexts. Most of the material dates to the Middle and Late Bronze Age, with fewer Early Bronze Age artefacts; it is weighted to high-status weapons, particularly from the Middle Bronze Age. Distinct clusters of finds can be noted, particularly in the section of the river close to Nottingham, where some 40% of items were found. The river assemblage is dominated by weapons; in contrast to the regional assemblage for Central England as a whole, which has different characteristics and is dominated by tools. The River Trent material also shows marked differences in character to the contemporary assemblage from the nearby River Witham, wellknown in the literature for the deposition of prehistoric metalwork. This is surprising, as the River Witham flows as close as 6 km to the River Trent; it has become a commonplace of the archaeological literature to argue that Gewässerfunde are the result of ritual behaviour. We argue that the special character of the River Trent metalwork, high prestige and male, and its contrasting nature compared to the regional assemblage, marks it out as special and that the most parsimonious explanation for its deposition is that it was indeed ritual in character, perhaps in the context of funerals, and that this behaviour was concentrated at a number of special places along the river.
TH1-07 Abstract 25

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

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

Keywords: Bronze Age, Metal hoards, Mirno

Presentation Preference - Oral

Deposition of metal artifacts during the Bronze Age is a wider phenomenon attested all over the European territory. Occupying a western end position rich in mining minerals, the North-eastern Iberian Peninsula also witnesses these kind of past societies manifestations during the mentioned period. The present work aims to explore the archaeological remains of those practices in a narrowed part of the Iberian, specifically, in the Atlantic fringe of the North-western Portugal (between the basins of rivers Ave and Mirno) during the Late Bronze Age. For that, it will be taken into account some of the regional available data, including in progress research, in order to verify some contingencies of such a complex past age.

Such a task will not only prioritize the different types of metal objects, their hypothetical biographical character and chronologies, but, specifically, and whenever possible, their micro and medium contexts of deposition, including recent contributions from fieldwork research. In a regional scale it is interesting to attest that some deposition preferences prevail.

TH1-07 Abstract 26

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

Author - PD Dr. Reinhold, Sabine, German Archaeological Institute, Berlin, Germany (Presenting author)

Keywords: Caucasus, Hoards, Ritual practice

Presentation Preference - Oral

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

TH1-07 Abstract 27

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

Author - Qin, Cao, Oxford, United Kingdom (Presenting author)

Keywords: Bronze Age, China, metalwork

Presentation Preference - Oral

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

TH1-07 Abstract 28

Selective deposition in the Bronze Age. Selective deposition and the visibility of innovations

Author - M.A. Dietrich, Oliver, Deutsches Archäologisches Institut, Berlin, Germany (Presenting author)

Keywords: Bronze Age, Socketed Axes, Southeastern Europe

Presentation Preference - Poster

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

TH1-07 Abstract 29

The middle Bronze Age necropolis in Gllareva-the Mycenaean influence in Kosova

Author - Prof. Luci, Kemajl, Museum of Kosova, Pristina, Kosova (Presenting author)

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

Presentation Preference - Poster

Kosova’s favorable geographic position in the central Balkans has enabled its connection with neighboring and farther territories, thus making the influence of various cultures possible from the earliest periods. The development of early prehistoric cultures in Kosova has been sufficiently explored through systematic work. Nonetheless, there is insufficient knowledge on the development of the Bronze Age in Kosova. With the finding and excavation of the necropolis in Gllare, important new steps have been made to complete this gap. Excavations in Glare have provided the most precise data for solving important problems of the Bronze Age in Kosova, as well as for the development of period as a whole. Two necropoleis have been identified marked as Glare and B. Both can be dated to the XV and XIV centuries BCE. So far, 48 grave constructions have been found, consisting of two types of burial practices: inhumation and cremation. Regarding the analogies and chronological determinations of the bi-ritual burial practices it is possible to conclude that inhumation, with or without stone constructions, is the older type of burial. The task of dating the graves with cremation was conducted through reference to urn fragments, specifically their handles, which can be placed in a broader chronological time frame. Dating the graves with inhumation can be done through reference to the other numerous finds, some of which have analogies in the larger geographical region, such as jewels, weapons, and ceramics. The material cultural also, which is quite exclusive and in particular the weaponry, attests to the high degree of knowledge of metal manufacture, production techniques, as well as decoration. The Glare necropolis shows that the Middle Bronze Age in Kosova had a developed culture with significant influences from, and ties to, Mycenae, as an important social, economic, and political center. Swords, axes, and various types of knives point to the connections with production centers in Epirus and Albania from where the Mycenaean influence expanded through the Drin valley and Vardar basin. Excavations in Glare have also given evidence to the beginnings of a stratified society in the area, the formation of a ruling class, and the formation of the Illyrian Dardan “tribe” in the Central Balkans. Thuly, the Bronze Age in Kosova becomes and important stage in the formation and development of the Illyro-Balkan peoples, their culture and society identity.

TH1-07 Abstract 30

“Multieszential” 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

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

52

53
UNDER THE RAISED ROOF: CREATING THE SPACE FOR FAMILY AND COMMUNITY

Friday, 2 September 2016, 16:00-16:40
Faculty of History, Room 330

Author - M.A. Postma, Daniël, Groningen Institute of Archaeology, Lelystad, Netherlands (Presenting author)
Co-author(s) - Romankiewicz, Tanja, University of Edinburgh, School of History, Classic and Archaeology, Edinburgh, United Kingdom
Co-author(s) - Postma, Daniël, University of Groningen, Groningen Institute of Archaeology, Groningen, Netherlands

Keywords: Buildings, archaeology, Methodology, Netherlands

Presentation Preference - Oral

Archaeological settlement research in the Netherlands can traditionally be characterised by its coverage of large excavation areas, often yielding substantial numbers of house-plans. This picture is particularly applicable to the (Peatocene) sandy soils, where poor preservation conditions enable quick and fairly straightforward documentation of postholes and other, mostly negative soil features. Over the years, numerous typologies have been built up which outline regional groundplan varieties and their development through time. But this conventional typological approach has recently been criticised for not having moved beyond basic data classification. Theoretical interpretations, on the other hand, may be said to push our understanding of past societies beyond what can 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.

This paper presents a simple strategy to avoid this methodological gap, by focusing on the common remains that are found in a high percentage of excavations: the foundation trench. It builds upon and elaborates upon the concept of functional typology, which has recently been introduced as an alternative to the common typological ‘building blocks’, as a means of closing the gap between classification and interpretation.

It will be demonstrated that the concept of a ‘functional typology’ can provide a framework for systematically building up a well-founded, yet holistic view of excavated ground-plans. The key objective in setting up a functional typology is to analyse and explain how ancient buildings functioned in their various respects. Starting as objectively as possible, the level of interpretation gradually increases to a total of five steps: 1) typological analysis, 2) functional use analysis, 3) technical analysis, 4) reconstruction and 5) contextualisation.

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

Interpretation of the Archaeological Record

TH1-08 Abstract 04

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

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

Keywords: Human remains, Northern Netherlands, Ritual practice

Presentation Preference - Oral

Between 1923 and 1934, excavations were carried out in the 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 terps 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-storied, two-partite houses with built-in byres.

Excellent preservation, also of pottery and bone, enabled not only a thorough investigation of the cultural material, 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 life cycle of a house: raising the house platform, building the house, living in it and finally abandoning the house. A conspicuous element of ritual practice was the burial of human remains in and near houses. It will be argued that burying the remains of deceased family members created ancestral grounds and also made people feel at home. Single inhumations and single bones (probably the remains of the dead which were collected after a process of exhumation) were both used that way. Ritual practice associated with houses changed over time. It was influenced by internal developments, especially population growth, which caused changes in the layout of the settlement and competition for the available space on the terp.

TH1-08 Abstract 05

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

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

Co-author(s) - Celin, Ulf, SAU, Uppsala, Sweden

Keywords: Building construction, Sunken floor hut, Viking age

Presentation Preference - Oral

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

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

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

The paper will present a study upon the placement of entrances, building material and construction details. The houses within the study shows a great variation concerning construction and interior design details such as ovens, benches, looms, etc. Another study deals with what activities that has taken place in the 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 06

The Dark Ages? Light and its absence in medieval domestic spaces

Author - PhD student Vågström, Linda, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: Buildings, Darkness, Light

Presentation Preference - Oral

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

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

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

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

TH1-08 Abstract 07

Long-houses in east central Sweden during Late Bronze Age

Author - Magnusson, Reidar, Brf Gudhjem, Bornholm, Bornholm, Denmark (Presenting author)

Keywords: Interpretation, Late Bronze Age, Long-houses

Presentation Preference - Oral

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

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

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

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

TH1-08 Abstract 08

The use of architecture as cultural and socially discriminators in Iron Age Denmark

Author - PhD Haue, Niels, Historical Museum of Northern Jutland, Aalborg, Denmark (Presenting author)

Keywords: Buildings, Community organization, Settlement

Presentation Preference - Oral

Most of the Iron Age Houses in Southern Scandinavia shows an invariable construction that only allows minor differences in the architecture of the individual house. The houses are three-aisled, east west oriented and divided into a staithe in the east and living area in the west. However, in rare occasions the alignment and the interior design of the house is fundamentally different. This paper will address whether these differences should be explained by functionally or economically patterns, or rather as a deliberate discriminator in a social-cultural and ideological context? The paper will present how architecture was used to express and manipulate identity and social groupings in the settlement, and discuss what the consequences of the “distorted” space within the house could have.
TH1-08 Abstract 09
At the hearth. Daily life, and domestic architecture in Early Iron Age farmsteads of Western Denmark

Author - Dr. Nygård, Niel Asgård, Museums of South West Jutland, Ribe, Denmark (Presenting author)
Keywords: Domestic activities, Iron Age, Settlement Archaeology
Presentation Preference - Oral

This paper will discuss the evidence of domestic activities in the Early Iron Age (500 BC - 150 AD) farmsteads of Western Denmark. The Danish evidence of daily life and domestic activities can roughly be divided into two: Evidence from well-preserved settlements with preserved cultural layers excavated in the 1920s to 1950s and evidence retrieved from settlements levelled out below modern day plough soil. The former has the advantage of in situ evidence of daily activities on the preserved floors while the later mainly benefits from the large amount of completely excavated farmsteads and macro-radiocarbon dating 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 outskirts 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 well deposits found within the longhouses. Within the farmsteads of the later part of the Early Iron Age we find architectural traits such as stone paved entranceways, decorated hearths and fenced of farmyards. Individual households may through a more elaborate use of these architectural traits and well deposits have created a sense of homeliness and interconnectedness between the house and the household members. Though these developments at the same time set individual households apart from other households in the growing village communities by stipulating social differences.

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

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

Author - Dr. Banerjea, Rowena, University of Reading, Reading, United Kingdom (Presenting author)
Co-author(s) - Fulford, M. G., University of Reading, Reading, United Kingdom
Co-author(s) - Clarke, A. S., University of Reading, Reading, United Kingdom
Co-author(s) - Bamett, C., University of Reading, Reading, United Kingdom
Co-author(s) - Parhurst, N., University of Reading, Reading, United Kingdom
Keywords: Architecture, Soil Micromorphology, Urbanism
Presentation Preference - Oral

In Roman Britain, domestic urban properties are dynamic spaces with constantly evolving architectural forms. The evidence for super-structure components can often be ephemeral as these properties have timber or earthen walls, which are frequently truncated by later building foundations or, as observed at Roman 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 roaded, 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, abuting the north–south road, and had become poorly maintained with in situ evidence for metalworking activities. Micromorphology has demonstrated that in its earlier phases, the entrance way to the building had moved several times. There is also evidence for earthen floors, and the division of spaces. Earlier uses of this property may include the manufacture of glass, and space where animals were stalled.

The application of a spatial and diachronic microstratigraphic approach presents the opportunity to examine, at high resolution, the finer details of the daily lives of its inhabitants. In particular, this paper will examine how did the inhabitants structure their space? Were there divisions of craft and domestic activities? Early Roman structures at Silchester and elsewhere in Roman Britain are frequently single-roomed structures with central hearths. This is arguably a continuation of single-roomed Iron Age architecture. How does the architectural form of early Roman timber building 8 adapt and deviate from this model? Are changes due to a process of acculturation?
how those can help us to understand the family space? Can we definitely separate the family space from the communal one? Are those spaces interact and what are those differences? Are those architectural features different when they are at different sites? Are still important and, in our paper, we intend to propose some possible responses.

TH08-09 Abstract 01
Investigation of glass objects from Dodona Sanctuary, Epirus, Greece: an interdisciplinary approach
Author: Dr. Oikonomou, Artemios, University of Nottingham, Nottingham, United Kingdom (Presenting author)
Co-author(s): 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 Pyrhanoe and Vouloukion 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 glass; (2) to 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, crown-rolled engraved bowls) of a variety of colours (clear, 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 different production zones. A comparison of these glass chemical compositions with contemporary glass artifcats thus gives new insights into the production and distribution of glass used in Greek region during the Hellenistic period.
An Eye for an Eye bead: Early Iron Age glass from Lika, Croatia

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

Keywords: Croatia, glass beads, technology

Presentation Preference - Oral

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

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

The study shows how archaeometry can assist in providing a clearer picture of prehistoric production, use and trade of prestige materials. The prior hypothesis about the vitreous material is largely disproved: rather than being glass paste, the beads are in fact a transitional phase between glass and faience, and the yellow decoration is not painted on but made of true glass.

The two types of glass, and the raw materials used for their production, are very different: the yellow glass is probably imported as ingot, while the cobalt blue possibly indeed locally produced. Furthermore, the archaeological context allows a discussion of the beads’ meaning and use. Their distinct appearance was intentional, possibly in order to reinforce the identities of the lapidoan group. Although the lapidoes were importing glass from their well-known glass-producing neighbours of the Lower Carniola group, they still held on to this particular type of bead.

Additionally, these beads predominantly appear in female burials, possibly signifying a certain ascribed or achieved status of these women in the lapidoan 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 Drmijc, Ivan, 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 nucleus 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 lapidoes 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 published so far, while they are quite common in Lika and Lower Carniola during the Late Iron Age period.

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

I would like to present the results of an analytical program of La Tène Glass characterization conducted on more than seven hundred glass objects from 32 different settlements of France, using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) with the collaboration of Bernard Gratasse. We had the possibility to study the important collections of Latarra (Hérault), Bobigny (Seine-Saint-Denis), Toulouse (Haute Garonne) and a part of the large glass deposit of Mathay-Mantereau (Doubs). The study has also been conducted on 40 raw glass fragments from 3 shipwrecks sank between the third century and the end of the second century B.C. One of these raw glass fragment was recast on a wood fire oven with through collaboration and the authorization of French ministry of culture and direction of underwater and submarine research, (D.R.A.S.M.). Glass bracelets were produced. It give an experimental framework to this analytical study to observe the potential changes of glass compositions during its recast. This experimental and analytical work allows us to observe evolutions of glass recipes during the second Iron Age. It’s give news clues on the organization of raw glass productions. The objective of this communication is to share this result in order to suggest it to the European projects on La Tène glass examination.

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 serve as stylistic, temporal, and social markers, beads reflect larger patterns of social interaction and communication especially during periods characterized by significant change and increasing mobility. In the Irish Iron Age, the systematic study of artefact 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 dumplings, 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, Iron Age glass toggles span mortuary, ceremonial, and settlement sites across the island. The glass toggles vary in shape and color, and bone and amber examples are known. Through an examination of emergent patterns within the site types, associated artifact assemblages, spatial and temporal distribution, and stylicc 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. Hilewa, Tallinn, 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 style. Romano-British glass bracelets have primarily been studied from the regional perspective. Earlier research into the distribution and typology of British glass bracelets suggested that British examples stand out in their own right. The present study of the modern production technique compared to bracelets made on the Continent. The start of the production of the seamless glass annuluses in Britain corresponds with the decrease in the circulation of these glass adorns on the Continent. In the late first century BC, the Continental glass bracelets gradually stopped being produced, yet the craft reappears in Britain, which had no history of glass bracelets’ production prior to the Roman invasion of Britain in AD 43. The presentation attempts to answer the question as to where the inspiration and skills for the British glass bracelets came from by discussing their production technique. The experiments conducted with the modern glassmakers and the close inspection of the British glass bracelet fragments reveal that the British annuluses were most likely produced in the same 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 annuluses 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.

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

TH1-09 Abstract 10
Analysing a material ‘culture clash’: ‘sealing wax’ red glass in Late Iron Age Britain

Author: Dr. Davis, Mary, National Museum Wales, Cardiff, United Kingdom (Presenting author)
Keywords: Britain, glass, Late Iron Age
Presentation Preference - Oral

This paper will present work carried out on the analysis of Insular Late La Tène and Early Romano-British ‘sealing wax’ red glass. This was used principally as an inlay on high status decorative bronze work, which developed from the earlier La Tène traditions in both Europe and Britain of using opaque red ‘sealing wax’ glass to decorate metal artefacts. In late Iron Age Britain (1st century AD), the use of inlaid red glass flourished on objects exhibiting ‘Celtic’ styles and from regions in Britain resistant to Roman occupation. The quantity of this type of material produced was also significantly greater than in previous periods.

During the first century AD, in much of the Romanised world, the composition of red glass changed significantly from the 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 ‘nymphaea’ in southern Italy, in Hellenistic red glass and in red glass from Jerusalem.

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

Conversely, antimony was available in the form of lead antimonite, for which there were ancient and extensive trade networks. This was used as a yellow pigment and a colourant in glass. Yellow beads from the Middle and Late Iron Age in Britain were usually coloured using lead antimonite, and tesserae continued to be coloured with this red within 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 dissociate; the subsequent addition of copper (and lead), plus careful cooling in reducing conditions, could result in the production of red glass. This would account for the levels of antimony in late Iron Age British red glass, for the change in technology, and for the increase in the use of red inlays. Theoretical amounts of copper and lead could be added to the composition of analysed yellow glass to achieve results similar to those of analysed red sealing wax glass from Britain.
TH1-09 Abstract 11
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, grading and polishing), which fit perfectly one into the other. Between them, a gold-leaf decoration is sandwiched. These artifacts belong to the so called “Camosa Group”, which was attributed to Alexandria of Egypt and includes several glass techniques.

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

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

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

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

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

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

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

Author - Žnaljević, Jelena, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)
Co-author(s) - Dimitrijević, Vesna, Laboratory for Bioarchaeology, Belgrade, Serbia
Co-author(s) - Stefanović, Sofija, Laboratory for Bioarchaeology, Belgrade, Serbia
Keywords: Fishing, Hunting, Mesolithic Danube Gorges

Presentation Preference - Oral

Ever since the discovery of the site of Lepenski Vir, it was recognized that fishing had an important role in the settlement of the Danube Gorges during the Mesolithic. The importance of wild game hunting has also been confirmed by the analyses of animal bones and emphasized ever since the first published archaeozoological reports. The issue of the role of terrestrial vs aquatic resources in the diet has been addressed from the perspective of stable isotope analysis, with somewhat contrasting results. The analyses of stable carbon (δ13C) and nitrogen (δ15N) isotope ratios have suggested that the Mesolithic inhabitants of the Danube Gorges consumed considerable amounts of fish, with gradual broadening of the dietary spectrum to include terrestrial resources at the onset of the Neolithic (Bonsall et al. 1997; 2000; 2004; Gruppe 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). This issue has had to be addressed in greater detail from an archaeological perspective, mainly due to great difficulties and biases in cross-referencing quantified mammal and fish remains, but also due to the fragmentary nature of faunal assemblages from some of the sites. Although assessment of the precise proportion of wild game meat vs fish in the diet is elusive, particularly owing to the differences in mammalian and fish skeletons, and biases affecting their survival and recovery, we have attempted to address this issue by estimating their dietary contribution and nutritional potential on the basis of the sum of average weight of the minimum number of individuals for both mammals and fish. In addition, we estimated the proportion (size and number) of the economically most important fish (cyprinids, Wels catfish and acipenserids) in the assemblages from the sites of Lepenski Vir, Vlasac and Padina. Even with methodological biases concerning recovery techniques employed during the old and new excavations, and different areas of the sites they encompassed, we found that fish species composition on the three sites varied to some extent. Given the site locations, their short distance from one another and similar landscape and environmental conditions (vicinity of cataracts and large whitewater), this propensity towards fishing particular kinds of fish could suggest that the sites functioned as specialized fishing centres, and held different species of fish in special regard.

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

Author - Mgr, Monica, Valahia University of Târgovişte, Targoviste, Romania (Presenting author)
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
Co-author(s) - Bălăceanu, Adrian, National Museum of Romanian History, Bucharest, Romania
Co-author(s) - Radu, Valentin, National Museum of Romanian History, Bucharest, Romania
Keywords: Mesolithic, archaeozoological remains, food refuse

Presentation Preference - Oral

The first study of the archaeozoological remains from Iocana was made 40 years ago by Alexandra Bolșomy. The importance of this settlement led us to re-examine all the faunal material using methods such as slaughtering curves, ageing and sexing, boneometry, cut marks, butchery patterns and palaeogenetics. This has resulted in a new interpretation of the local fauna and of Mesolithic hunting activities. All the remains are interpreted as food refuse, with high fragmentation ratios. The list of taxa identified includes molluscs (11 species), fishes (12), reptiles (1) and mammals (16). The assemblage is dominated (93.5%) by wild mammals, with over 4300 identifiable specimens. Sus scrofa (wild boar) dominates, followed by Cervus elaphus (red deer) and Capreolus capreolus (roe deer). By weight, deer remains are the most important, followed by wild boar. Other taxa represented are Rupicapra rupicapra (ibex), Bos/Bison (aurochs/bison), Ursus arctos (brown bear), Canis lupus (wolf), Meles meles (European badger), Lutra lutra (European otter), Martes sp. (martens), 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 cut marks identified on the bones that 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-III-PT-2014-4-0519.

TH1-10 Abstract 04
Iocana revisited: an archaeozoological perspective

Author - Prociuc, Mariana, Valahia University of Târgovişte, Targoviste, Romania (Presenting author)
Co-author(s) - Mit, Monica, Valahia University of Târgovişte, Targoviste, Romania (Presenting author)
Co-author(s) - Boroneant, Adina, Institute of Archaeology “Vasile Pârvan”, Romanian Academy, Bucharest, Romania
Keywords: Mesolithic, archaeozoological remains, food refuse

Presentation Preference - Oral

The Low Povolzhye includes the northwest Caspian Sea region, the Povolzhye steppes and the semi-desert Caspian Sea region. Following a period of aridification, a humid period began in this region around 6700 cal BC. Desert conditions were replaced by a more favorable steppe landscape. This allowed a hunting economy to function properly. All sites were located on lake shores, where large trees were a magnet for animals. Onager and saiga antelope were hunted at watering sites in the north Caspian Sea region, onager, saiga antelope, aurochs and tarpan in the steppe Povolzhye, and gazelle in the northwest Caspian Sea region. Red deer, wild boar, wolf, fox and hare were hunted to a lesser extent. Bird bones are rare in the archaeozoological assemblages. Geometric microliths of trapeze and segment shapes were used as arrowheads. Fish bones, including catfish,pike-perch, pike and sturgeons, were found at individual sites near the river.

* For the project 33.1195.2014 K.

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

Author - Lozovskaya, Olga, Institute for the History of Material Culture, Russian Academy of Science, St. Petersburg, Russian Federation (Presenting author)
Keywords: beaver exploitation, bone industry, Mesolithic

Presentation Preference - Oral

The Low Povolzhye exhibited the northwest Caspian Sea region, the Povolzhye steppes and the semi-desert Caspian Sea region. Following a period of aridification, a humid period began in this region around 6700 cal BC. Desert conditions were replaced by a more favorable steppe landscape. This allowed a hunting economy to function properly. All sites were located on lake shores, where large trees were a magnet for animals. Onager and saiga antelope were hunted at watering sites in the north Caspian Sea region, onager, saiga antelope, aurochs and tarpan in the steppe Povolzhye, and gazelle in the northwest Caspian Sea region. Red deer, wild boar, wolf, fox and hare were hunted to a lesser extent. Bird bones are rare in the archaeozoological assemblages. Geometric microliths of trapeze and segment shapes were used as arrowheads. Fish bones, including catfish, pike-perch, pike and sturgeons, were found at individual sites near the river.

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

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

Author - Lozovskaya, Olga, Institute for the History of Material Culture, Russian Academy of Science, St. Petersburg, Russian Federation (Presenting author)
Keywords: beaver exploitation, bone industry, Mesolithic

Presentation Preference - Oral

The Low Povolzhye includes the northwest Caspian Sea region, the Povolzhye steppes and the semi-desert Caspian Sea region. Following a period of aridification, a humid period began in this region around 6700 cal BC. Desert conditions were replaced by a more favorable steppe landscape. This allowed a hunting economy to function properly. All sites were located on lake shores, where large trees were a magnet for animals. Onager and saiga antelope were hunted at watering sites in the north Caspian Sea region, onager, saiga antelope, aurochs and tarpan in the steppe Povolzhye, and gazelle in the northwest Caspian Sea region. Red deer, wild boar, wolf, fox and hare were hunted to a lesser extent. Bird bones are rare in the archaeozoological assemblages. Geometric microliths of trapeze and segment shapes were used as arrowheads. Fish bones, including catfish, pike-perch, pike and sturgeons, were found at individual sites near the river.

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

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

Author - Lozovskaya, Olga, Institute for the History of Material Culture, Russian Academy of Science, St. Petersburg, Russian Federation (Presenting author)
Keywords: beaver exploitation, bone industry, Mesolithic

Presentation Preference - Oral

The Low Povolzhye includes the northwest Caspian Sea region, the Povolzhye steppes and the semi-desert Caspian Sea region. Following a period of aridification, a humid period began in this region around 6700 cal BC. Desert conditions were replaced by a more favorable steppe landscape. This allowed a hunting economy to function properly. All sites were located on lake shores, where large trees were a magnet for animals. Onager and saiga antelope were hunted at watering sites in the north Caspian Sea region, onager, saiga antelope, aurochs and tarpan in the steppe Povolzhye, and gazelle in the northwest Caspian Sea region. Red deer, wild boar, wolf, fox and hare were hunted to a lesser extent. Bird bones are rare in the archaeozoological assemblages. Geometric microliths of trapeze and segment shapes were used as arrowheads. Fish bones, including catfish, pike-perch, pike and sturgeons, were found at individual sites near the river.

* This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS – UEFISCDI, project number PN-III-PT-2014-4-0519.
Lacustrine settlements of hunter-fishers in the Mesolithic–Early Neolithic of the forest zone of European Russia are part of the particular cultural and stable economic world of “the last hunter-gatherers”. The economy was based on hunting elk, beaver, aquatic and wading birds, as well as intensive activity. The site of Zamostie 2 was located in the centre of a wide lake plain in a former glacial basin. Cyclical fluctuations of the palaeolake level and a gradual change of the landscape did not influence subsistence strategies of ancient inhabitants greatly, in spite of the appearance of pottery making techniques. Bone fishing always occupied an important place in the substance activity of the Zamostie 2 inhabitants. The bone industry includes hundreds of implements made from beaver jaws and incisors, used as woodworking tools, as well as ornaments and pendants. In spite of pronounced changes in cultural traditions over more than 2000 years, the main principles of production, shaping and final use of the tools made from beaver jaws remained the same. This, as well as some other specific types of bone tools, typical of the Upper Volga region, raise the question of how an ecological niche influenced some aspects of human activities and the rational use of natural resources.

**TH1-10 Abstract 07**

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

**Author:** Selena, Vlăsîoî. Institute of Archaeology, Belgrade, Serbia (Presenting author)

**Keywords:** bone industry, Early Neolithic, osseous raw materials

**Presentation Preference:** Oral

Raw material selection of animal hard tissue is directed by technological, but also cultural factors. The availability of specific skeletal elements, their physical and mechanical properties, as well as cultural attitudes toward a certain animal and its body parts are the main factors in the process of selection. In the Early Neolithic of the Balkan region, osseous raw materials had an important role for crafting everyday tools, but also personal ornaments. In this paper are presented some aspects of the exploitation of osseous materials, in particular raw material acquisition and management. Bones from both domestic and wild animals were used, but also antlers, teeth and occasionally, moscow 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 in situ and in recovered skeletal elements. 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**

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

**Co-author(s):** - Subiró, M. Eugènia, GRAPAC, Unitat d’Antropologia Biògica, Departament de Biologia Animal, Biologia, Bellaterra, Spain

**Co-author(s):** - Colomar, André, BioArch, Department of Archaeology, University of York, York, United Kingdom

**Co-author(s):** - Correa, Pau, Institut de Ciència i Tecnologia Ambientals, Universitat Autònoma de Barcelona, Bellaterra, Spain

**Co-author(s):** - Rosell, Antoni, Institut de Ciència i Tecnologia Ambientals, Universitat Autònoma de Barcelona, Bellaterra, Spain

**Co-author(s):** - Saha, Nazir, Laboratorio de Arqueoecología, Departamento de Prehistoria, Universitat Autònoma de Barcelona, Bellaterra, Spain

**Keywords:** animal domestication, Early Neolithic, pig management

**Presentation Preference:** Oral

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

**TH1-10 Abstract 09**

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

**Author:** Dimitrijević, Vesić, University of Belgrade, Belgrade, Serbia (Presenting author)

**Co-author(s):** - Blagojević, Tamara, University of Belgrade, Belgrade, Serbia

**Co-author(s):** - Stefanović, Sofija, University of Belgrade, Belgrade, Serbia

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

**Presentation Preference:** Oral

Hunting played a role in the economy of the Central Balkans being one of the important prehistoric activities. Metal objects have been found at several sites of the region, only in the territory of the modern day Serbia. Due to the eastern direction and the Late Neolithic - Chalcolithic transition time, these kinds of objects are not as widespread as they are in the Balkans area. This is why we expect the remains of Neo-Balkan aurochs (Bos primigenius) to be found in this territory. We present some examples of the aurochs’ distribution and find evidence of hunting. Although scarce, aurochs were present in the Central Balkans during the late Neolithic, as can be judged from the faunal remains from Paleolithic 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 Neolithic, 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 Paleolithic atural deposits mainly consist of cranial parts, whereas those from Paleolithic 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 Velenceia in the Danube Gorges. The processing of animal carcasses 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 established already at the onset of the Neolithic. In this respect, the sudden and synchronous appearance of aurochs made from aurochs metatalars bones in the Central Balkans, as well as within the large area stretching from Anatolia to Pannonian plane and Carpathian Mountains is intriguing.
TH1-11 Abstract 02
Before and after the emporium. The early and late phases of Walchrum (Domburg-Oostkapelle, NL)
Author - Dr. Deckers, Pieterjan, Vrije Universiteit Brussel, Etterbeek, Belgium (Presenting author)
Presentation Preference - Oral
Walchrum, situated near the present-day town of Domburg (Netherlands), is often referred to as one of the late Merovingian and Carolingian emporia, an interpretation mainly based on the substantial number of coins collected on the eroding beach by 19th-century antiquarians. However, a review of the full range of evidence makes clear that this emporium did not emerge out of nothing; situated nearby a Roman temple, the site probably continued to function as a cult site throughout the Early Middle Ages and derived some of its early significance as a trading site from this. Similarly, the site’s spatially limited roots can literary turn into a quest for a needle in a haystack. The latest Early Medieval developments on the site have in the past been subject to generalising interpretations of their character, layout and function. Changes in the towns’ dynamics over generations of town dwellers have 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 spits, while an opposite reflex is necessary to produce a clearer phasing of each separate case. Before comparisons are made, the individual life trajectory of each town should be understood to its fullest.
This paper examines how geoarchaeological approaches contribute to a more nuanced understanding of these towns, with a focus on the earliest and latest phases of the town under study. Illustrating this approach with case studies from the Low Countries, including Tongeren and Antwerpen, and Scandinavia, such as Hedeby and Kaupang, this paper makes a case for a particularistic examination of early medieval towns before wider comparisons are made.

TH1-11 Abstract 03
Bypassing monolithic entities: diachronic and spatially informed approaches to early medieval towns
Author - Wouters, Barbara, Vrije Universiteit Brussel & University of Aberdeen, Brussels, Belgium (Presenting author)
Keywords: early medieval, geoarchaeology, urbanisation
Presentation Preference - Oral
The settlement areas of early medieval towns have in the past been subject to generalising interpretations of their character, layout and function. Changes in the towns’ dynamics over generations of town dwellers have 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 spits, while an opposite reflex is necessary to produce a clearer phasing of each separate case. Before comparisons are made, the individual life trajectory of each town should be understood to its fullest.
This paper examines how geoarchaeological approaches (micromorphology, microXRF, and other techniques) contribute to a more nuanced understanding of these towns, with a focus on the earliest and latest phases of the towns under study. Illustrating this approach with case studies from the Low Countries, including Tongeren and Antwerpen, and Scandinavia, such as Hedeby and Kaupang, this paper makes a case for a particularistic examination of early medieval towns before wider comparisons are made.

TH1-11 Abstract 01
Emergence and Downfall of Viking Towns: The Concealed Phases within the Archaeological Record
Author - Dr. Kalmin, Sven, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany (Presenting author)
Keywords: Concealed Phases, Urbanisation, Viking Towns
Presentation Preference - Oral
In Viking studies one of the most attended field of research is – apart from the process of Christianisation and Scandinavia’s integration into the occidental Europe – the emergence of urbanism in a remote area where the concept of towns was never introduced before. Interestingly enough scholars agree on the fact that in Scandinavia itself only four sites can be regarded as urban at all. Despite their limited number these few sites tend to be conceived as chronologically rather monolithic entities taking the best preserved evidence as a characteristic for the whole settlements, which in fact have – modify as a discontinuous phenomenon – have existed and change over a time period of some 250 to 300 years. The reason for this is due to the fact that the earliest traces of over time intensively settled communities are covered by metres of cultural layers and thus their spatially limited origins tend to be hard to trace down. And in some regard the same is true for their latest phases of development exposed to ploughing, erosion or modern construction. Despite these obstacles this paper wants to focus on just these hard to grasp phases in order to contribute to a more differentiated view on Viking urbanism in its chronological depth deserved.
TH1-11 Abstract 04
Changing Places: a comparative discussion of London and Tours in the Early Medieval Period

Author - Donnelly, Harriet, The University of Sydney, St Leonards, Australia (Presenting author)

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

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

Author - Calon, Diego, Stanford University, Stanford, United States of America (Presenting author)

Keywords: Adriatic, Emporium, Venice

Presentation Preference - Oral

How did Venice's urban life look in the 9th century? Venice suffers from its own legends. The materiality of the rising Venice has been generally perceived as sites without time and space, where a fully established myth describes the origin of the city. The Venetian lagoon, in fact, was the place where the noble Romans sought refuge from the barbarian hordes: they had been forced to move to uneasy islands among the marshes to be free and safe. In the islands the newcomers were able to rebuild a place that - according to the historic narratives - was ideologically and materially comparable to the old Roman sites.

The uncoined wood structures of the early medieval houses, for example, have been described as a poor reaction to a sudden and significantarchaeological 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 islets in order to control both the maritime and the riverine sailing routes. Artisanal productions (glass goblets, parchments, metal crafts) were not subsistence economies; the emporia layout of the sites allowed the circulation of raw materials, techniques and skilled people.

Venice was a proto-capitalistic site. A large part of the production (shipyard, timber industry, glass and metal productions, etc.) was made by labour forces with a status very similar to slaves. Probably, also, slaves were one of the most valuable goods, which the Venetians traded with the Islamic world. But slaves, dirty workshops or labour class issues are not good ingredients for the myth of the origins or for the official history of a superpower state. Venice proudly defined itself from the very beginning as a democracy and a free republic: Venetians needed a respectable and glorious past, and they made it up, reshaping also the "idea" of the early city.

The idea of the early Venice, moreover, cannot be separated from the present. Traditional archaeology, instead, has studied it as phase of the previous roman past. The archaeological study of its urbanism should it considered in the counter light of the fluid social negations that took place around a very specific environment, creating post/local sites, which will be cities in the following centuries.

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

This fact is certainly partly based on historical facts. Although some exceptional elements are observable - such as the local government of the Venetan public assembly (placitum) and the amphitheatrum nature of the settlement (placcato) and the amphitheatre overestimated at least as far as the Early Middle Ages is concerned. In the 9th and 10th centuries the apparently novel appearance of Venice on the Italian political scene and the associated emergence of the Venetian public assembly prevailed over by the duke has numerous parallels in other parts of Italy where several urban communities, mostly represented by their lack of ability to act as social and political entities at the same time. In addition, the region around Venice demonstrated its own economic vitality with other towns competing for the control of the Adriatic sea well before the 9th century by engaging in maritime and artisanal activities remarkably similar to those of other settlements in Northern Europe, which archaeologists such as Chris Loveluck and Will Bowden usually call emporia.

Moreover, some recent reconstructions suggest that the rapid growth of Venice in the 8th and 9th centuries can be explained by a combination of the contemporary expansion of the Carolingian empire which increased demand for luxury goods with Venice's special location on the sea near a great river delta (the Po). Although it is likely that the convergence of both these factors had played a major role in the sudden development of the city, it is often forgotten that Venice shared the same ecological and the same economic system with many other trading towns at least in this earlier period.

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

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

Author - Tsymbalyuk, Svetlana, Institute of problems of development of the North, Tyumen, Russian Federation (Presenting author)

Co-author(s) - Anoshko, Oksana, Institute of problems of development of the North, Tyumen, Russian Federation

Keywords: forstes, 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 protocities formed in the early Iron Age. The first simple fortifications in the form of stockades or fortified dwellings in the forest-steppe zone of Trans-Urals are fixed on the materials of the Bronze Age monuments (the II millennium BC). During this period their number was insignificant, the bulk continued to be unfortified villages. The increase in the number of fortified settlements was greater in the transition period from bronze to iron (the 2nd part of the 1st millennium BC). They were round-oval in shape towns with area 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 their cultural traditions within phratry. In the early Iron Age (the middle of the 1st millennium AD) the number of settlements increases. In the forest-steppe zone of Trans-Urals their number more than 100. One-third of excavated settlements are multicultural, from 15 to 20 fortified settlements belonged to carriers of certain ethnic groups. Within this period the dynamics of fortification is well traced. Fortification of early stage continue the tradition of the transition from bronze to iron time. Archaeologically they are fixed in the form of small grooves on the perimeter, holes for posts, charcoal and traces of burnt wooden structures in the embankment of the earthen rampart. They are reconstructed as a hedge of stockade fence around the residential area. Most of them could not perform a defensive function. Already at that time there is specialization of fortified settlements as centers of metalworking, import, exchange, cooperation of multicultural population. 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, creeks, 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 emplacements 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 continues the same trend of Chinese and Central Asian origin indicating them as centers of trade and exchange. The forstesses 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

The early urban development in the steppes date to the Early Medieval Epoch and, in particular, to the time of the Chasarian Kaganat (from the 7th to the 9th cc). So far their number has been limited to several, now famous, urban developments located along the Don river such as Saktel-Balya Vezha, Pravobereznoe Taimianskoye gorodishche (urban development), and Semikarakorskye gorodishche. Numerous urban developments in the adjacent areas of the foreststeppe Podorone (the Don basin valley) and Pronemoroch (the Dniepr basin valley) dating to the Chasarian epoch are the representative of the material culture of the Don Alan, Bulgar, Oguz, Pecheneg, and Slavs. Those of the Crimea and the Northern Caucasus associate with the culture of local sedentary population which were agrarians. Only those sites which are located along the Don and the Volga belonged to the Chasarian Kaganat proper, hence it is these urban developments that can be related to ethnic Chasarians. The last decades saw simultaneous discoveries of several sites of the Chasarian Kaganat in the Volga-Don steppes. In the late 1990s at a kilometer distance from the Pravobereznoe Taimianskoye gorodishche an urban development was opened, which contained the ruins of fortress walls of white lime stone. One of the stone blocks displayed a tanga of a typically Chasarian shape. The new fortress 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 stone and lime fragments parallel to those found in late Chasarian on the Crimean peninsula (Jacobson, 1958, 1964). One of the stone blocks also had a tanga in it. According to two radiocarbon dates (682-665 at 68.3% and 600-662 at 95.4%) and (672 - 782 at 96.0%), resulting from the dating carried out by Ural Laboratory of the Institute of Archaeology of the Russian Academy of Sciences, it was confirmed that the Chasarian period. In the late 1990s a kilometer distance from the Bashanta gorodishche an urban development was opened, which contained the ruins of a tanga of a typically Chasarian shape. The new fortress was to be the last of the urban developments in the East European steppes dating to the time of the Chasarian Kaganat. The excavations of 2000-2005 of a large number of late medieval urban settlements in the Upper Volga, undertaken by the Khalkhin Institute of Archaeology of the Tatarstan Academy of Sciences, resulted in discovering cultural layers of the later Chasarian period. As a number of the preserved finds shows, the Chasarian urban development was located on the right bank of the river, 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 waterfalls. An ongoing research project responds to this and has started the chase on the earliest history of Odense. The project is based on the idea that urbanism combined with new analysis on older material, among others a new AMS dating. At the same time new large-scale excavations in the city center brings new possibilities to get the most out of the remaining parts of the city’s past. Also a new excavation at the ringfort (trelleborg) Nonnebakken is relevant in this aspect. The paper will focus on the following questions: Why is Odense and not one of the other late iron age central places that becomes the centre of society? What is the significance of Nonnebakken – the only trelleborg nearby a contemporary city – in relation to the making of Odense? Or is it the ringfort that is placed by the city? May a smaller trade- and crafts area be seen as an urban phenomenon? Or must there be more to it? These questions are essential in the context of Odense, but will be used also to address central points in a principal discussion on methodologically challenges, definitions and dynamics regarding early urbanism.
TH1-11 Abstract 11
More than a landing site, less than a vicus.

Medieval Gásir in northern Iceland

Author - Prof. Vésteinsson, Orri, University of Iceland, Reykjavik, Iceland (Presenting author)

Co-author(s) - Roberts, HOWELL, Institute of Archaeology, Iceland, Reykjavik, Iceland

Co-author(s) - Gisladóttir, Óðrún, Institute of Archaeology, Iceland, Reykjavik, Iceland

Keywords: Iceland, Medieval, Trade

Presentation Preference - Oral

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

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

TH1-11 Abstract 12

Medieval Gásir and places it in the context of social and economic organization in the medieval North Atlantic.

TH1-11 Abstract 13
From late prehistoric harbours to medieval towns in the eastern coast of the Baltic

Author - Dr. Miči, Manika, Tallinn University, Tallinn, Estonia (Presenting author)

Keywords: development of towns in the Eastern Baltic, Late Iron Age, centres, trade and communication

Presentation Preference - Oral

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

TH1-11 Abstract 14

Hot beds? Manure pits in medieval Ackerbürgerstädte

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

Co-author(s) - Aerts, Sander, Leiden University, Leiden, Netherlands

Co-author(s) - Habraken, Ruben, Bio Archaeological Research Bureau, Leiden, Netherlands

Co-author(s) - Habraken, Ruben, Bio Archaeological Research Bureau, Leiden, Netherlands

Co-author(s) - Hees, Erica van, Leiden University, Leiden, Netherlands

Co-author(s) - Host, Jantine, Municipal archaeological service of Delft, Delft, Netherlands

Co-author(s) - Ridderza, Femke, Leiden University, Leiden, Netherlands

Keywords: agrarian towns, hot beds, late medieval

Presentation Preference - Oral

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

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

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

TH1-11 Abstract 15

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

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

Co-author(s) - Devoas, Yannick, Université Libre de Bruxelles, Bruxelles, Belgium

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

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

Co-author(s) - Degraeve, Ann, Head of the Department of Archaeological Heritage, Brussels, Belgium

Keywords: Brussels, Geoarchaeology, Urban agriculture

Presentation Preference - Oral

The study of the early development of Brussels, Belgium, has shown to be a challenge. Over the last century historians have heavily debated on the scarce existing – often very questionable – historical sources, trying to explain the emergence of this city situated along a steep slope bordering the Senne river. In the last decades, a new generation of historians underlined the importance of agricultural development and expansion as an important factor for the early development of Brussels (Charruadas, 2011).

Of course the question should be raised whether there are any archaeological data supporting this hypothesis. Despite the many interventions taking place in the centre of Brussels, no remains of farmsteads have been recovered. But archaeologists do almost systematically encounter dark earth dating from the 10th-13th century A.D., period where the historians situate the early town development.

An interdisciplinary approach has been developed to study these dark earths, involving not only historical research and archaeology, but also geocarchaeological (including soil micromorphology and physico-chemical analyses) and archaeobotanical studies. These studies highlight that several human activities can be hidden behind complex formation processes, some related to the development of an agro-pastoral system (Devoas et al., 2009; 2011, 2013; Vrydaghs et al., 2016).

The present contribution will discuss the results of the study of these dark earth units, and demonstrate how they contributed to the understanding of the early town development and the importance of agricultural activities, the location of crop and pasture land, and the cultivated crops.

References:


Devoas, Y., Nicosia, C., Modrie, S., 2013. Studying urban stratigraphy: Dark Earth and a microstratified sequence on the site of the Court of Hoogstraeten (Brussels, Belgium).


TH1-11 Abstract 16

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

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

Keywords: Medieval archaeology, Urbanization

Presentation Preference - Oral

An interdisciplinarian approach has been developed to study these dark earths, involving not only historical research and archaeology, but also geoarchaeological (including soil micromorphology and physico-chemical analyses) and archaeobotanical studies. These studies highlight that several human activities can be hidden behind complex formation processes, some related to the development of an agro-pastoral system (Devoas et al., 2009; 2011, 2013; Vrydaghs et al., 2016).
This paper will discuss how to understand the early development of Odense seen through the archaeological record. Is it possible to see how and when the town transformed from agrarian to urban during the 11th to 16th Century? Until now the evidence in the form of archaeology 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 appropriation of the formation of the cultural deposits and sampling for macrobotanical, zoological archaeological and micromorphological analyses. This paper aims to challenge these questions using examples from the survey of multimetal sites conducted as part of the thesis project. A comparison between selected sites will be presented. The purpose of this is to evaluate the role of multimetal 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 18
Multimetal smithing - An urban craft in rural settings?
Author - Svensson, Andreas, Lund University, Lund, Sweden (Presenting author)
Keywords: Complex metalworking, Multimetality, Urban package
Presentation Preference - Oral

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

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

The thesis project “From Crucible and onto Amvill” 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 feature in the project is to elucidate the conceptual aspects of complex metalworking. The term multimetality is used to analytically frame all the societal and economic aspects of multimetal craftsmanship. Through this inclusive perspective both the craftsmanship and the metalworkers behind it are positioned within the overall 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 urbainity. 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 urbainity 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 urbainity relate to the chronology of multimetalty craftsmanship?
Production and Distribution networks in the Diocese of Tuam, West of Ireland, AD 500-1000

TH1-11 Abstract 21

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

Keywords: Church/Sacral, Economic development, Trade

Presentation Preference: Oral

The discussion of early medieval urban development in Ireland is dominated by the coastal emporia of the Vikings at Dublin, Waterford etc. As vigorous the Vikings were in facilitating broad social and economic change, they were still an ethnic minority in Ireland. Therefore 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 Dooaghaght, a coastal site where exchange happened in the eighth century. The primary mode of the production of crops is thought to have been by buying in the grain, as there is a lack of evidence for on-site production with the grain samples excavated being entirely free of chaff. The site, and possibility others like it were not permanently used, but seems to have been occupied between late spring and early autumn, the very same as the main sowing season for much of Europe.

This form of exchange may have been brought into fruition as increased specialisation of production coupled with increased opportunities to exchange. This may have had a direct impact on the decline of the importance of the cow can be seen as a move away from the type of economy, widespread in pre-Roman Europe, where an item value was bestowed upon it not because of its intrinsic value, like that of the silver economy which the Vikings helped to develop, but in its cultural value. The silver bracelets found at places like Cushalogurt, Co. Mayo and Portumna, Co. Galway could indicate a much richer trade network through peripheral Ireland, or at least a heavier Viking presence in the area than previously thought.

While the terminology of ecclesiastical sites, particularly the use of ‘crusias’ to describe sites such as Kilclare, has smudged the idea of what constituted urban in this context, it is clear that these establishments acted as centres of production and distribution, in a way that rings might not be 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 Dooaghaght 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.

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

TH1-11 Abstract 22

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

Keywords: diversity, Low Countries, Research

Presentation Preference: Oral

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

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

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

Keywords: iron processing, social practices, urbanity

Presentation Preference: Oral

Classical ways of defining urbanity are ill-matched with the early phases of a developing town, and indeed often with the archaeological source material at hand. New ways to describe urbanity in a way that is easier to recognize through archaeology are called for. In my PhD-project I explore some new aspects to this problem by studying urbanity through social practices in the first phases of the developing town of Copenhagen, Denmark. One of these areas concerns crafting, specifically iron processing. Through four areas of study, I analyse the material remains of social practices undertaken on the site of Tomn Hal Square c. AD 1050-1100. This paper will discuss the two questions: What can the study of social practices connected to the iron processing activities, in combination with technical analyses, reveal of urban development, of people and networks involved in the iron handling? And what can the role of iron processing have been for the early development of Copenhagen?

TH1-11 Abstract 24

Small town in medieval Russia: the ratio of agricultural, craft and administrative functions

Author: Koval, Vladimir, Institute of archaeology RAS, Moscov, Russian Federation (Presenting author)

Keywords: administrative function, agrarian towns, small towns

Presentation Preference: Oral

Small towns in medieval Russia remains one of the most mysterious phenomena. Unlike the cities of Europe and the Orient, the medieval (11-16 cc.) Rower structures founded towns in Russia primarily as administrative points. Therefore agricultural component of their life was most vital.

However, these towns soon transformed to centers of trade and crafts. If this transformation did not occur, town became unviable died quickly. But the ruralization of life persisted in many towns to the 20th c.

TH1-11 Abstract 25

Medieval Oslo Revealed: Latest results from the Folio Line excavations

Author: Nordlie, Erlend, Norwegian Institute for Cultural Heritage Research, Tårnåsen, Norway (Presenting author)

Keywords: Excavation, Medieval, Oslo

Presentation Preference: Poster

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

Friday, 2 September 2016, 09:00-16:00
Facility of Philosophy, Room 207

Author - PhD Zhilina, Institute of archaeology RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Stepanova, Julija, Tver State University, Tver, Russian Federation

Presentation Preference - Oral

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

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

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

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

STH1-12 Abstract 02
Purses-amulets from territory of Tvua in I mill. BC as a phenomenon of cultural symbolization

Author - Busova, Varsara, Institute for the History of Culture, Saint-Petersburg, Russian Federation (Presenting author)
Keywords: archaeological leather, early iron age, scythians

Presentation Preference - Oral

In Tvua (Russia) there are leather purses different degree of preservation and a completely different content, what belong to the Scythian period (IV-III centuries BC). In some cases, it is the muck deer canines, whetstones, needle, in other case - wood composite comb in leather purse (from the tomb Holade k.83 (Mongun-Taiga). The republic of Tvua, Russia) that has been completely seen along the edge of the product. This burial mound was excavated by Tvua Archaeological Expedition of the Institute for the History of Culture. During the restoration internship at the State Scientific-Research Institute of Restoration (Moscow), it was possible to revert to it in 2014. Thanks to the prerestoration study, hitherto unnoticed fact noted (ocher coloring) and described structure of leather product.

Of course, together with the dead in the Barrow put the amulet as a comb for the hair brings a deep symbolic load associated forces of nature, its protection properties. But what was to see the edges of the leather articles? Modern Altaï-to suit women belt, append seven leather purse on a path with the umbilical cord first child in the family.

STH1-12 Abstract 03
Sewn jewelry in Old Russian costume

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

Presentation Preference - Oral

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

Sew metal jewelry is characteristic both for the noble and for a domestic costume. In a noble costume the plaques of various forms sewed to clothes were widely used. Sometimes the whole sets of plaques of several types formed the ornamental friezes, which were settling down in cervical and breast zone. Similar sets are a part of hoards and come from a number of city and rural burials (for example, the hoard from Toccho, burials in the Tver Kremenets, in St. Sophia Cathedral of Novgorod, in Desiatinnaja church of Kiev, burial lands Lipskoy (the Kursk region), Novriki II (the Volgogda region, etc.). The archaeological studied stand-up collar, decorated by sets of plaques, are most numerous.

Sets of plaques, apparently, were ripped off from clothes entirely and keep together with the sewed plaques. Such practice remained later. Lists of a dowry and the bequeathed things quite often include the removable and cut-off details. In the rural burials (for example, the hoard from Torzhok, burials in the Tver Kremlin, in St. Sophia Cathedral of Novgorod, in Desiatinnaja church of Kiev, burial lands Lipskoy (the Kursk region), Novriki II (the Volgogda region, etc.). The archaeological studied stand-up collar, decorated by sets of plaques, are most numerous.

Among other sewed jewelry the bells draw attention. There is a series of burials, in which the bells settle down in a certain order. They can be considered as markers of structure or a cut of clothes. The following options of a location of bells are allocated: on rings on shoulders, symmetric; to the line across a breast; in the zone of a belt; in some horizontal lines in the zone of a skirt. Probably, the linearly located bells ornamented edges or connections of separate parts of clothes. Symmetric jewelry on the shoulders testifies the shoulder clothes, perhaps, like a Russian traditional sarafan. Ways of fastening of the sewed jewelry can be various: by wooden threads on rings; by thin leather laces. It is obvious that the set of metal sewed jewelry made heavier clothes. Besides, there was a need repeatedly to alter jewelry. Materials of hoards and burials, undoubtedly, show a festive costumes, and funeral, which could correspond a lifetime festive costume. The sets of festive clothes were stored together with the sewed jewelry that excludes need to unpick repeatedly jewelry from clothes. Such details as collars, could be ripped off from clothes entirely and keep together with the sewed plaques. Such practice remained later. Lists of a dowry and the bequeathed things quite often include the removable and cut-off details. In the XV-XVII centuries, metal details give way to pearls, golden-sewn stripes and lace and metal plaques, which were also of great value and were transferred from one cloth to another.

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

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

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

Author - student Sandu, Roxana, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Margarit, Monica, Valahia University of Targoviste, Targoviste, Romania
Co-author(s) - Lazar, Catalin, National History Museum of Romania, Bucharest, Romania

Keywords: beads, cemetery, Eneolithic

Presentation Preference - Oral

The Eneolithic adornments from the Sultana-Malu Rosu cemetery represent a particular case of archaeological 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 Boian and the Gumeinita cultures (ca. 5000-3800 cal B.C.) used this cemetery. In these circumstances, the beads encountered some changes in form, dimension and raw material preference for their crafting, but other aspects remained the same in their evolution. Furthermore, the anatomical deposition of the beads on the skeletal remains is a significant source of information in the identification process of the beads as components of the costume or if they were only jewellery pieces.

The aim of this paper is to explore the beads discovered in the Sultana-Malu Rosu cemetery, from the contextual, technological, functional, and symbolical point of view, but also to interpret the ways in which they were worn, combined and deposited in the graves. Our approach will cover use-wear analysis to identify the meaning of this beads, and to determine the social, economic, gender, and religious connotations of this kind of artifacts.
Women’s funerary dress in 12th-century North Estonia.

One costume – complex meanings.

of textiles led to the analysis functions and technological features.

Presentation Preference

Co-author(s):

Author:

Keywords:

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 items give plenty of information about the attire of the dead.

Collected information allows constructing the appearance of the whole costume that seems to be common to the North and North-Eastern Estonia of that time. Various details of the costume can be related with stressing and protecting the fertility of a woman’s body, for example, the colours of textiles or the habit to adorn certain parts of the body with jewellery (breasts, waist and 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 medieval 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 Gora, Central Croatia. The brooch bears a partly deciphered inscription intended 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 served to fasten the two ends of a shirt collar together below the neck, or to fasten a cloak. As regards the function of any given specimen, our guess depends primarily on its size, which has been further corroborated by an experiment recently carried out in Croatia.

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

Annular brooches remained in use until the 15th century, reaching the heyday of popularity in the 13th and 14th centuries.

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

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

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

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.

Funerary garment of the first woman (coffin No. 9) was the silk, long apron draped 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). At the lower edge of the apron was silk frill 90 mm wide. Apron was seen worn 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 hand decorations. 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 image of each) the eight at the left and right rear portion (also constituting its mirror image).The skirt consists of 7 elements: two located on the left front, two on the right front, and a single central rear portion considerably elongated. Left side is a mirror image of the right side.

Fabric used to sew a dress has an area approximately 5 square meters. The head of the dead woman was laid on a pillow with a silk pillowcase. Pillowcase was made from a single piece of fabric (front and rear portion are of the same shape), but in the course of many years, the bottom portion has been destroyed, so archaeologists recorded two separate components. Pillow shape is similar to a quadrilateral with rounded corners. The maximum height is 470 mm, the maximum width is 510 mm. Around the edges the frill close or rear part is silk ribbon. The band is now a dark brown color. In addition, between the edges with the ribbons was seen decorative III.

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.

Attire of the adornments: the main historical stages:

natural, heavy-metal, jewelry, the accessory

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

Natural attire originated during primitive era, its elements were preserved in ethnographic suit. Adornments were made of available natural (plant and animal) materials, but artificial materials (ceramics, glass, textiles) were beginning to be used.

Adornments mainly decorate the body, their forms correspond to its parts: head, waist, necklace, belt, braclet. The joining between adornments may be masking, tying, stingling, piercing.

Variegated colors were used, images of the natural world were reflected. Sacred and aesthetic functions were in unity.

Heavy-metal attire has existed since the era of metal (Eneolith, Bronze Age) and during early Middle Ages. Heavy and numerous adornments of non-precious metal produced by forging and casting, fastened and kept draped clothes on the body unitsing it into a single structure. The attire of Finno-Ugrian peoples fully represent this stage.

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

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

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

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

Jewelry items are linked together structurally and stylistically, their connection with clothing is typological. Silver ball-shaped pendants and back head net complemented Russian command headgear (“kizhba”). Gold diadem in cloisonné enamel complemented band headgear.

Constructive connection of jewelry and clothes became not very important, though sometimes was preserved.

On the basis of fine and peculiar jewelry techniques original art styles and ornamental elements formed. Art images were able to reflect the symbols of concrete religions. Sacred and aesthetic functions are equally important.

The accessory attire is characteristic to the New time and modernity. Adornments are made from the variety of materials and in every possible techniques, exist as other costume techniques, and even become not required.

Items are linked stylistically and with color harmony. They complement the suit, can be replaced and changed, they are rather independent from the structure, style and typology of the suit.

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

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

Author: PhD Stanca Ciuperc
Co-author(s): - Dr. Magureanu, A., Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)
Keywords: complex, costume, Zupan

Zupan - one of the oldest components of the costume wearing the by the Belarusian society. From the XIX and the beginning of the twentieth century Zupan was a component of the military costume, was functional, warm, made of woollen fabrics and quilted. The 19th and 20th centuries Zupan became an essential element of the Belarusian gentry culture. During the Renaissance Zupan has evolved from military clothing to the main component of ceremonial Belarusian dress. Zupan began to sew from precious silk, velvet tissues, using a trim and gilded buttons. Such a rich clothes acquired status significance. During this period suit with the Zupan has become a unique distinctive artistic phenomenon, the hallmark of noblemen, manifestation of their political role.

This report will propose six major reasons for the emergence of 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 XVII and XVIII centuries will be presented. It will be noted that the basic principles of cutting and style of wearing Zupan remained almost unchanged for three centuries. Red, white and gray colors of Zupan were most widespread during the lifetime of the gentry’s suit.

Wearing a costume with the Zupan in 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 retinue - Belarusian component of the traditional male costume. Today Zupan becomes a component of the Belarusian intelligentsia costume during family (weddings), and corporate events.

---

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

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

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

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

---

Jewelry or decorations? Decoration or jewelry? Theory and practice.

Author: Phd Iosif, History and Archaeology Prahova County Museum, Ploieşti, Romania
Co-author(s): - Dr. Magureanu, A., Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)
Keywords: construction, costume, jewelry

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

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

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

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

The report is intended to emphasize the functionality of the jewelry, having practically checked the theoretical assumptions by reconstructing the wear of the different periods and trib.
Women’s headwear from the burials of the III-IV centuries in Suzdal Opole

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

Keywords: burial rites, headwear, Migration period

Presentation Preference - Oral

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

According to the anthropological remains and the presence of decorations is determined that 9 adult individuals are women. Remnants of headwear found in 5 of them and in one burial of girl 8-10 years. 2 women were buried wearing head coronas of different type: in one burial, it was a ribbon, fastened with an iron buckle. It was decorated with glass beads, small bronze rings and fragments of jungling pendants. In another burial the corolla consisted of a ribbon with attached plates with rings, decorated with pearl ornaments. According to the observations of I.Belotserkovskaya, similar clips with rings appeared at the end of the II–III cc. In IV–V cc. they have proliferated and are becoming an indispensable part of the coronas and occasionally necklaces from the population of Riazan-Oka culture. T. Kraschenko believed that the head coronas put on the top of the textile shawls, which were a part of the main parts of the women’s headwear. 3 persons had the head decoration of a different type: these were clusters of oval bronze clips that were closely strung on cords with small wire rings and semicircular plaques. Probably cords with clips and small ornaments were woven onto organic bases (leather, textile?). In all these burials near the skull found a pair of large cylindrical temporal rings with blade. The presence of complicated, often multi-layered women’s headwear is one of the characteristics of funeral rites in cultures of Finno-Ugric type, continuing over a long period of time from the Migration period to the late middle ages.

T. Kraschenko, N. Trubnikov and I.Belotserkovskaya made a reconstruction of the traditional headwear of female burials of the early phase of Riazan-Oka culture. Mostly it’s a cap of leather or textile with a rigid skeleton, represented by the bronze plate or bat.

Caps were decorated with sewn on badges and straps with bronze spirals. Bronze cylindrical temporal rings with blade were attached to hats. At the back were often fastened with a brooch with jungling pendants.

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

Keywords:
• Dr. Zaytseva, Irina, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)

Presentation Preference - Oral

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

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

Keywords: archaeology, dress, Scandinavia

Presentation Preference - Oral

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

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

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

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

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

Keywords:
• MA Kossowska, Dominika, University of Warsaw, Otwock, Poland (Presenting author)
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 purpose of this 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 limitation, in the process also local evidence to Scandinavian fashion has been detected and further analysed, thus trying to determine how far one has influenced the other. It must be noted that this is only hypothetic version lacking definitive proof in form of actual archaeological finds, although backed by strong supporting evidence.

---

**TH1-12 Abstract 18**

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

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

**Keywords:** costume, decorations, medieval

**Presentation Preference:** Oral

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

---

**TH1-12 Abstract 19**

Jewellery workshop in the medieval Smolensk

**Author** - Muromtseva, Tatyana, The Institute of archaeology, Baturinovka, Russian Federation (Presenting author)

**Keywords:** Archaeological excavations, Jewellery workshop, Medieval city

**Presentation Preference:** Oral

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

---

**TH1-12 Abstract 20**

Andronovo Costume: Headgear and Ritual

**Author** - Senior Fellow Umanova, Emna, Saranyka Archaeological Institute, Reserve Park “Ulytau”, Karaganda, Kazakhstan (Presenting author)

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

**Presentation Preference:** Poster

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

---

**TH1-12 Abstract 21**

Peruvian textiles in Warsaw National Museum

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

**Keywords:** Paracas, textiles, 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 (faze Nazca: 500 B.C – 200 C.E) and other two are tapiz fragments woven in Wari state (500 – 1000 C.E). Embroideries (plain stitch looped behind) are similar in shape and color pattern and it is very probable that they were pieces of the one material. Analogical fragments are part of collections of Metropolitan Museum of Art in New York. These types of embroideries were depicted on the big blankets - mantles, which were part of the fardos – funeral bundles. Two tapiz fragments were originally sewn into the small purse (trapezium in shape), which were also typical burial object. Its ornamentation is very schematic – geometrical, colorful designs. Pre-Columbian textiles fragments from Warsaw National Museum are very well preserved and they are one of the most beautiful Peruvian fabric in polish collections.

---

**TH1-12 Abstract 22**

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

**Author** - 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 of Novodevichy Convent (Moscow) necropolis of the 17th – 18th centuries was studied. Among the buriala the burial of a man of 55-60 years of great interest. In the burial, numerous textile fragments, forming the shape of a trapezoid, were found around the head and shoulders. Metal buttons – dumb-bells and baptismal cross were fixed on the chest. In the area of the belt there was a rectangular buckle. A comprehensive study of textile remnants shows that they are the remains of collar clothes, made in the technique of golden embroidery on the red velvet. The main patterns of the embroidery ornament are vegetable branches forming sharp oval stamps, as well as elements such as tulip, bugle braid, pomegranate flower, typical for the Turkish fabrics of the 17th century. Silver decoration (a sleeveless vestment) had high solid collar and apricot-shaped collar. Apricot-shaped collar for the rich character is characteristic for priests’ garments (cloak). Preserved in the burial pieces of gold embroidery and the presence of spherical buttons, buckles, their location in the burial give the possibility to partially reconstruct the shape of a phelonion. The main fabric of phelonion has not been preserved, but the position of the buttons in the burial lets assuming that the cloak was long, and its front edge was fastened with buttons. This is typical of the ancient type of phelonion.

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

---

**TH1-12 Abstract 23**

Jewelry from Germanic graves in Krakovany - Stráža (Slovakia)

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

**Co-author(s)** - Krupa, Vladimír, Balcristian Archaeological Museum Piešťany, Piešťany, Slovakia

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

**Presentation Preference:** Poster

The Balcristian Museum in Piešťany (Slovakia) acquired golding from grave of noble person in Krakovany – Stráža (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. Ball decorations made of silver, golden and silver clasp from the grave II are decorated with identical motifs.
**TH1-12 Abstract 24**

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

**Author:** Doc. Lipkin, Sanna, University of Oulu, Oulu, Finland (Presenting author)

**Co-author(s):** Jokinen, D., University of Turku, Turku, Finland

During excavation of a buried individual an excavating archaeologist ceased digging when traces of leather were discovered on and around its lower extremities. The projects on-site conservator was able to identify the leather, and could therefore instantly develop a strategy for the retrieval of the objects. Both conservator and archaeologist worked together to isolate the presence of the leather; that seemed to be primarily concentrated around the upper body. The leather was much degraded and a decision was made to lift the entire upper body in a block and continue the excavation in the conservation studio.

**Presentation Preference - Poster**

Burying deceased parishioners beneath the wooden church floor was a common practice for approximately for 50 years at the church of Köyliö, built in 1752. Due to church renovations during the summer of 2015, a number of burials were surveyed and excavated as part of a salvage effort due to the risk posed to the remains, with an unknown number of burials remaining in situ. The dry and well-ventilated microlimate 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 burial of the deceased at Köyliö represents both social and symbolic aspects, contrasting the life and death of these individuals. The sample includes two elderly women, a middle aged man and three children. Based on their attire and various ornaments we may look into the social ranks of the deceased. Additionally, the selection of 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.

---

**TH1-12 Abstract 25**

**Archaeology and conservation intertwined: A leather jacket’s journey through conservation**

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

**Co-author(s):** Lotti, Benjaminson, Studio Västsvensk Konservering, 41502 Göteborg, Sweden

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

**Presentation Preference - Poster**

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

During excavation of a buried individual an excavating archaeologist ceased digging when traces of leather were discovered on and around its lower extremities. The projects on-site conservator was able to identify the leather, and could therefore instantly develop a strategy for the retrieval of the objects. Both conservator and archaeologist worked together to isolate the presence of the leather; that seemed to be primarily concentrated around the upper body. The leather was much degraded and a decision was made to lift the entire upper body in a block and continue the excavation in the conservation studio.

Excavation of the leather and the individual was conducted using water, soft brushes and tools. When the first layers of clay and sand were removed it became apparent that this was in fact an individual buried in a leather jacket. In order to fully understand the jacket's construction it was decided to remove it from the individual. Osteological analysis revealed that the jacket belonged to a 20 year old man. Once separated textile conservators continued the excavation and conservation of the jacket by cleaning and flattening the different pieces and fragments. As previously predicted the leather was in a much degraded state. However, some typical features were exposed and a pattern was traced and then constructed. References pertaining to the jacket place it in the fashion of the second half of the 16th century.

---

**TH1-12 Abstract 26**

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

**Author:** Baumann, Nadine, German Archaeological Institute, Frankfurt, Germany (Presenting author)

**Keywords:** funeral costume, merovingian, textiles

**Presentation Preference - Poster**

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

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

This is also reflected in the late grave 25 (to 670/80). The young woman wore a fine spingarnet patterned garment that was open or split vertically in the upper body area and closed with two silver press plate fibulae with mask-like heads. The burial also included a gold filigree fibula and a necklace of amethyst, glass and amber beads, silver plate cylinders and disc-shaped gold pendants. Representative for male graves should be grave 368 with extensive weaponry (sword, scrimaax, shield and spear) and multi-part belt fittings. Under the belt the deceased wore a tunic-like garment made of diamond twill, while further textiles was found together with feathers (perhaps a lining or feathers scattered loosely).

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

---

**TH1-12 Abstract 27**

**Clothing in figural decorations on Lusatian culture pottery**

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

**Keywords:** clothes, Lusatian culture

**Presentation Preference - Poster**

Among the extremely rich ornamentation on Lusatian culture pottery, most common are geometric patterns in the form of engraved triangles, lines and herringbone motif. Anthropomorphic motifs are not so common. Usually these are very schematically human figures presented in the form of a few lines. So far they are known two finds of Lusatian culture pottery from Polish territory, depicting human figures in more details. First one is from Trzsta Radowa, site 1, and the second is from Wencja Góra, site 21. On the first vessel, the characters are dressed in ample robe tied at the waist, which are visible vertical stripes. They can be interpreted either as stripes on the fabric forming a decorative pattern, or as a drape of fabric folds in the shape of peplos. On the second vessel is a human figure in form of a triangle with a schematically shown limbs. On the background triangle are circles. The closest analogies to this presentation are those of the vessels of Sopron in Hungary and Maiersch in Austria. There is also another anthropomorphic motif on a vessel from Gąsawa, depicting two groups of people presented in the form of two triangles touching the tops and filled with diagonal lines. Is is possible that, that is fabric stripes or draping the folds? A similar presentation is on a vessel from Prächtling in Upper Franconia. In this paper I would like to reflect on the possibilities of interpretation of these ornamentations and it is possible to use them in reconstructions of clothes of Lusatian culture.

---

**TH1-12 Abstract 28**

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

**Author:** Wilson, Kelvin, Kelvin Wilson, Roderkerk, Netherlands (Presenting author)

**Keywords:** Costumes, Paleolithic, Women

**Presentation Preference - Poster**

A female figurine scratched onto a small stone found in 1961 near Geldrop in the Netherlands, and dated to around 9,000 BC, shows her dressed in a incoth cloth worn low on the hips. A new look at what hitherto might have been thought as of several random lines, suggest they may be instead interpreted as details of the garments construction. The resulting reconstruction throws a detailed glimpse on one of the garments worn by Europe's prehistoric reindeer hunters.
TRADITION AND INNOVATION IN TEXTILE TECHNOLOGY IN BRONZE AGE EUROPE AND THE MEDITERRANEAN

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

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

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

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

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

This paper aims at discussing the significance of wool production in the European Bronze Age. The focus is on discussing which archaeological and anthropological material best is used in order to identify, and interpreted the impact wool production had on the society, and the environment. The basis for this paper will be well-documented material from Hungary (Benta Valley) and northern Italy, areas that have clear indications of extensive wool textile production.

The available contemporary written sources from the Mediterranean and Near East bear witness to the fact that sheep husbandry was a vital component in wool based economies. In Europe only archaeological material can guide us to understand the importance of sheep-husbandry and woollen textiles. Strontium isotope analyses that has been conducted on the well-preserved textiles from Scandinavia shows that wool in the same textile came from various geographical areas, both probable local and none local. This shows that a complex system of production and trade must have existed in Europe during the Bronze Age. This paper aim discussing the cultural, economic and social role of wool production in the above named regions.

TH1-13 Abstract 02
Manufacturing Traditions in Textile Archaeology
Author - Dr. Band-Burgess, Johanna, Landesamt für Denkmalpflege, Esslingen, Germany (Presenting author)
Keywords: Manufacturing Traditions, pile-dwellings, Textile Archaeology
Presentation Preference - Oral

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

TH1-13 Abstract 03
Textile impressions on ceramics from the late Neolithic to the early Iron Age in Central Europe
Author - Schäfer, Stefanie, University Kiel, Kiel, Germany (Presenting author)
Keywords: Bronze Age, Central Europe, Textile ceramic
Presentation Preference - Oral

Due to their bad preservation conditions, textiles represent an unusual find in archaeological find contexts. Impressions of textiles on ceramic appear, however, more often and provide information about textile technology and raw materials. The so-called textile ceramics occur worldwide in all time-steps. The objective of this paper is to analyse this phenomenon from the late Neolithic to the early Iron Age in Central Europe. The function (functionality versus ornamental arts) as well as the analysis of used raw materials and techniques are up for debate. Silicone impressions, experimental archeology and grouping procedure serve the investigation. In a case study the production technology, the materials and the usage will be analyses in the social context of the Bronze Age settlement Bussow in Poland. This central settlement was integrated into a commercial network and had many different raw materials. The socio-cultural meaning of textiles was probably far more important than we can imagine today, living in a world of textiles mass consumption. Great findings of web weights illustrate this. This contribution’s intention is also to examine the value of textiles in general.

TH1-13 Abstract 04
Innovative or traditional? Diachronic approach to weaving technology in Bronze Age Greece
Author - Dr. Ulanowska, Agata, Centre for Research on Ancient Technologies, IAÉ PAN, Łódź, Poland (Presenting author)
Keywords: Bronze Age Greece, textile production, weaving technology
Presentation Preference - Oral

Weaving in Bronze Age Greece has been acknowledged as highly advanced technology resulting in greatly valued products of supreme quality and high importance to local economies and external trade. Because of the novelty time-consuming character of the textile craft and its overall complexity, it is assumed that even slight changes in textile technology (including weaving) must have had a direct impact not only on the properties and presumably the aesthetic qualities of textiles, but also (by effecting the amount of the necessary workload) on economics and social life of past societies.

Traditional and innovative elements in the weaving craft throughout the Bronze Age are not easy to understand based on the archaeological evidence. They may be grasped in presumably progressive changes in the forms of textile tools (yarn and loom weights) and their distribution which may have reflected the transfer of technical novelties, skills and techniques, and they can be observed in the iconography of fabrics and cloths.

In this paper, diachronic changes and the long-lasting traditionalism of certain types of loom weights are considered and analysed in search of gradual development and ground-breaking novelties of the Aegean Bronze Age weaving technology.

TH1-13 Abstract 05
Tradition and innovation of textile manufacture in Early Bronze Age Greece
Author - Dr. Siennicka, Małgorzata, University of Copenhagen, København S., Denmark (Presenting author)
Keywords: Aegean, Bronze Age, textile production
Presentation Preference - Oral

The manufacture of textiles and garments had a long tradition in the Aegean already prior to the beginnings of the Early Bronze Age. Numerous textile tools, especially spindle whorls and loom weights, are preserved from the Neolithic settlements. This central settlement was integrated into a commercial network and had many different raw materials. The socio-cultural meaning of textiles was probably far more important than we can imagine today, living in a world of textiles mass consumption. Great findings of web weights illustrate this. This contribution’s intention is also to examine the value of textiles in general.

Keywords: Bronze Age, Central Europe, Textile ceramic
Presentation Preference - Oral

Due to their bad preservation conditions, textiles represent an unusual find in archaeological find contexts. Impressions of textiles on ceramic appear, however, more often and provide information about textile technology and raw materials. The so-called textile ceramics occur worldwide in all time-steps. The objective of this paper is to analyse this phenomenon from the late Neolithic to the early Iron Age in Central Europe. The function (functionality versus ornamental arts) as well as the analysis of used raw materials and techniques are up for debate. Silicone impressions, experimental archeology and grouping procedure serve the investigation. In a case study the production technology, the materials and the usage will be analyses in the social context of the Bronze Age settlement Bussow in Poland. This central settlement was integrated into a commercial network and had many different raw materials. The socio-cultural meaning of textiles was probably far more important than we can imagine today, living in a world of textiles mass consumption. Great findings of web weights illustrate this. This contribution’s intention is also to examine the value of textiles in general.

TH1-13 Abstract 04
Innovative or traditional? Diachronic approach to weaving technology in Bronze Age Greece
Author - Dr. Ulanowska, Agata, Centre for Research on Ancient Technologies, IAÉ PAN, Łódź, Poland (Presenting author)
Keywords: Bronze Age Greece, textile production, weaving technology
Presentation Preference - Oral

Weaving in Bronze Age Greece has been acknowledged as highly advanced technology resulting in greatly valued products of supreme quality and high importance to local economies and external trade. Because of the novelty time-consuming character of the textile craft and its overall complexity, it is assumed that even slight changes in textile technology (including weaving) must have had a direct impact not only on the properties and presumably the aesthetic qualities of textiles, but also (by effecting the amount of the necessary workload) on economics and social life of past societies.

Traditional and innovative elements in the weaving craft throughout the Bronze Age are not easy to understand based on the archaeological evidence. They may be grasped in presumably progressive changes in the forms of textile tools (yarn and loom weights) and their distribution which may have reflected the transfer of technical novelties, skills and techniques, and they can be observed in the iconography of fabrics and cloths.

In this paper, diachronic changes and the long-lasting traditionalism of certain types of loom weights are considered and analysed in search of gradual development and ground-breaking novelties of the Aegean Bronze Age weaving technology.

TH1-13 Abstract 05
Tradition and innovation of textile manufacture in Early Bronze Age Greece
Author - Dr. Siennicka, Małgorzata, University of Copenhagen, København S., Denmark (Presenting author)
Keywords: Aegean, Bronze Age, textile production
Presentation Preference - Oral

The manufacture of textiles and garments had a long tradition in the Aegean already prior to the beginnings of the Early Bronze Age. Numerous textile tools, especially spindle whorls and loom weights, are preserved from the Neolithic sites which demonstrate
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.

The presented paper, throughout an examination of finds, analysis of plant macrofossils and molluscs will highlight the evidence from Akrotiri, Thera. The primary focus of the paper lies on impressions of threads, strings and ropes preserved on objects made of clay and on wall paintings. We will attempt an examination of the technical properties of these products on the basis of their impressions and we will consider their use for a variety of purposes. Our observations compare to another set of data, namely the actual strings and ropes that have been exceptionally preserved and published from the same site.

---

**TH1-13 Abstract 08**

**Does anybody still wear that?**

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

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

**Presentation Preference**: Oral

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

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

---

**TH1-13 Abstract 09**

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

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

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

**Presentation Preference**: Oral

Hala Sultan Tekke site is located in the southern – east part of Cyprus, ca. 7 km from Larnaca. The investigation has been being undertaken at the late Late Cypriot city of Domotzai Vlatzai. Due to a large territory that the settlement could have occupied the archaeological research has been divided into smaller areas. The exploration started in the so-called Area B, in the 70’s of 20th century. At that time, the director of the excavation was a Swedish professor Paul Åström. At the end of the 80’s of the 20th century, works at the site have been suspended for some years. The excavations started again in 2010 within a project “New Swedish Cyprus Expedition” led by prof. Peter Fischer and it included Area B in the northern part of the site.

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

Additionally, two stages of site occupation have been discovered. Stratum 1 and Stratum 2 that can be differentiated by a change in the soil colour and a shift in the stone constructions technique. The research in the 20th century as well as the one conducted for last six seasons brought to light interesting matters regarding textile production at the site. There are both artefacts, including spindle whorls and dozens of loom weights and acrobatical alternative uses of twisted fibers in Aegina. The presented paper, throughout an examination of finds, analysis of plant macrofossils and motifs will highlight the importance of Late Cypriot III phase for Domotzai Vlatzai in the Mediterranean basin.
THI-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, Escola 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 Castrejón culture located in the northwest of the Iberian Peninsula from the Late Bronze Age to the entrance of the Romanization. These two basic concepts are innovation and technological loan. Through these conceptual tools that enable us to face a research methodology on spinning bowls, which help us answer arises why this innovation and its spread to other areas, although this study will focus on documenting spinning bowl in Castrejón culture. To explain his presence in this geography and chronology, we will investigate on issues related to the use of Linum usitatissimum, textile raw materials related to this innovation and secondly to open the investigation to their role within the technical chain embodiment of linen thread in the phase of the splicing techniques.

THI-13 Abstract 11
Woolen textiles from the times of Roman influences, the site in Grudna, Poland
Author - PhD Grupa, Małgorzata, Nicolaus Copernicus University in Torun (NCU), Torun, Poland (Presenting author)
Keywords: import, textile, wool
Presentation Preference - Oral
Textile samples (with sizes not exceeding 2 x 3 cm), sent to The Laboratory of Archaeological Monuments Conservation of the Institute of Archaeology of NCU in Torun were exceptionally interesting when it turned out that they were made of woolen fibres in spinning bowl technique, while the other part imitated, known in later ages, so called gauze, made in weave ½. 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?

THI-13 Abstract 12
Biconical ceramic spindle whorls from Maleva mogila near Veselinovo Village, Bulgaria
Author -atchev, Todor, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)
Keywords: ceramic spindle whorls, Early Bronze Age
Presentation Preference - Poster
The prehistoric Maleva mogila is situated on the left bank of the Tundzha River. It is situated approximately 2 km south-east from the village of Veselinovo in the Yambol district, Bulgaria. The site was inhabited during the Late Neolithic, Early Bronze Age and Medieval periods. During the archaeological excavations and field walks, 9 whole biconical ceramic spindle whorls were found. Most of them showed similar size and measuring. All of them belong to the third phase of the Early Bronze Age according to Bulgarian chronology (2800 – 2600 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.

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

Co-author(s) - Pasztkó-Széke, Judit, University of West-Hungary, Hungary
Co-author(s) - Kolcsey, Gabriella, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary
Co-author(s) - Selevényi, Vajk, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary
Keywords: Bronze Age, Central Europe, textile imprints
Presentation Preference - Poster
Despite the vast number of textile imprints on ceramics as well as of textile tools (e.g. spindle whorls, weights, spools and needles) from the Bronze Age, textile production – although a key social and technological element of society in this period – has been a profoundly neglected topic in Hungary.

As part of a recent multidisciplinary research project (“From bones, bronzes and sites to society: Multidisciplinary analysis of human mobility and social changes in Bronze Age Hungary (2500–1500 BC);” http://inik.mta.hu/en/eng/autumn-09) launched this year by the Hungarian Academy of Sciences Momentum research programme, our study focuses on local textile production and consumption during the Early and Middle Bronze Age in the Carpathian Basin. The primary goal of our poster is to present the pilot study of this research concerning the technologies used for producing woven and non-woven textiles imprinted on the surface of ceramic storage vessels.

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

THI-13 Abstract 14
Bronze Age (1800–500 BC) textile craft in Estonia on the basis of archaeological sources
Author - PhD Rammo, Riina, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Poster
Although textile craft is complex, and socially and economically significant, there is little known about textile techniques during the Bronze Age on the eastern shore of the Baltic Sea. In Estonia no textile or cloth remains dated to this period have been found so far. As a result, only indirect evidence such as probable tools (e.g. spindle whorls, bone needles) and textile impressions on pottery can be used to study how the cloth was made. This is also the reason why this topic has deserved only little attention by the researchers.

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

THI-13 Abstract 15
Hallstatt textiles from Poland. Analysis of textile finds from the bi-r ritual cemetery in Świebó
Author - Miśniowska, Joanna, Polish Academy of Sciences, Łódź, Poland (Presenting author)
Co-author(s) - Antonisz, Łukasz, IAE PAN, Łódź, Poland
Keywords: bi-r ritual cemetery, Hallstatt Period, Textiles
Presentation Preference - Poster
Textile production during the Hallstatt period was an internal part of everyday life of societies living on Polish territory. However, discoveries of fabrics are very rare. Textile remains from this period, survived primarily in the skeletal bi-r ritual graves in Świebów’s voivodship. Among preserved fragments of organic finds we were able to distinguish the clothes remains and the elements of accessories. The best preserved and well studied textile remains come from the cemetery in Świebów, Gliwice district.

The locality was accidentally discovered in 1930s, but regular excavations started 30 years later. As a result of the archaeological work, 566 cremation urns and skeletal graves were explored, which provided a rich set of materials. Grave goods are local products, as well as imports from the regions of the South and West Europe. 63 graves contained remains of textiles. Most survived fabrics adhere to metal outfits. In addition, research encountered woven tapes remains, braided ribbons, threads and strings.

Material acquired from the cemetery in Świebów is the largest textile collection from Hallstatt period, discovered in Poland. It waited at museum warehouse IV since 2015 when Institute of Archaeology and Ethnology Polish Academy of Sciences at Łódź proceed with further studies. Despite the fact that most of fragments were small and mineralized, all undertaken analyses lead to better understanding of textile production in Hallstatt period in Poland, with its innovative and traditional elements.
One of the most characteristic decorative motifs, appearing at the facial urn from Pomeranian culture, are combs. Those most schematically shown in its simplest form, a few vertical lines engraved from the horizontal line. A more realistic had singled handle, circle suspension and sometimes also the details of ornamentation. Combs images were placed on the central parts of urn, on its upper or lower part. Among the researchers any ideas of several vertical lines are interpreted as combs. In this poster I want to draw attention to another possible interpretation of ornamentations on urn of Pomeranian culture from Szemud, Poland. In literature, this image is described as “alleged” comb. It was noted that both the same image, as well as the location of the engraving is unusual for typical combs motifs. If not a comb, then what? According to the author it is a representation of the vertical loom. This interpretation is supported by exceptionally long and densely arranged engraved lines, but most important are the engraving is unusual for typical combs motifs. If not a comb, then what? According to the author it is a representation of the vertical loom. This interpretation is supported by exceptionally long and densely arranged engraved lines, but most important are located halfway up the three horizontal lines that bring to mind three heddle bars. These elements of the vertical loom for making a more complex patterns.

CHILD’S LIFE – BETWEEN PLAY AND WORK

Thursday, 1 September 2016, 14:00-18:30

faculty of History, Room 332

Author - Blaževičius, Povilas, National Museum - Palace of the Grand Dukes of Lithuania, Vilnius, Lithuania (Presenting author)
Co-author(s) - Romanowicz, Paulina, Institute Archeologi i Etnologi PAN Szczecin, Poland

Presentation Preference - Regular session

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

TH1-14 Abstract 02

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

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

Keywords: Baltic Sea region, children, enamel hypoplasia

Presentation Preference - Oral

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

The aim of the study was to analyze the prevalence of localized primary canine hypoplasia of subadult individuals in selected 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 Pirmagalis, Lithuania) and medieval sample (16-18th c.c. represented by selected sites from Vilnius and Trakai, Lithuania). Medieval sample was subsequently divided in three groups, based on different social status of individuals. In total, 134 individuals (336 teeth) were included in the study. All primary canines were visually scored for presence or absence of the defect. The highest prevalence of hypoplasia was found in the Stone Age sample: 38.8% of primary canines (50% of individuals) were affected. Children from the Iron Age sample and medieval sample had statistically lower frequency of LHPC (21.1% and 25.4% of teeth, respectively, p<0.05). Results also revealed differences in the prevalence of LHPC, according to social status. Children of the highest social rank had lower frequency of hypoplasia compared to children from lower social strata (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.
THI-14 Abstract 03

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

Author: Dr. Lorentz, Kiri, The Cyprus Institute, Nicosia, Cyprus (Presenting author)
Keywords: UHN growth, human bioarchaeology, work
Presentation Preference - Oral

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

THI-14 Abstract 04

Childhood in Pre-Roman central Tyrrhenian Italy

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

Researching children’s daily life in Pre-Roman central Tyrrhenian Italy is challenging, as there is minimal archaeological material indicating the presence of children in settlement contexts. The existing evidence on children 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 Etruria, Latium and Rome. This paper will examine, the birth and death, nurture, play and education as well as everyday tasks of children. Even though funerary materials primarily indicate perception of death, it is also possible to extrapolate an individual’s roles in everyday life. For instance, textile work was a duty of girls by the latest as juveniles, but both archaeological and ethnographic data suggest that even small children learned manufacturing technologies, perhaps through play. Funerary data proves that even small infants had been bestowed important status within their families, and their enculturation was already in process prior to their death. Socialization through gender roles is also visible through examination of funerary attire.

THI-14 Abstract 05

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

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

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

THI-14 Abstract 06

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

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

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

THI-14 Abstract 07

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

Study cases from Latvia’s Iron Age cemeteries

Author: Ilvina, Aija, SIA “Arheologiskā izpēte” (Archaeological Research Ltd), Akūšene, Latvia (Presenting author)
Presentation Preference - Oral

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

THI-14 Abstract 08

Christianisation of children’s death in Western Pomerania

Author: Dr. Romanowicz, Paulina, Center for Medieval Archaeology of the Baltic Region IAE PAS, Szczecin, Poland (Presenting author)
Keywords: burials, christianisation, Western Pomerania
Presentation Preference - Oral

Between 1124 and 1128, Western Pomerania was visited by the missionary bishop Otto from Bamberg who Christianised the region. He founded several churches and taught people how to practise the true Christian file. One part of this community that was involved in this big historical event were children. The aim of this paper is to present the differences between the children burial from Western Pomerania from the pre-christian medieval period and the period right after the Christianisation. This will be done to examine essential elements of changed religious practices in treating children’s dead bodies.
Children and animals in ancient Greece; animals as children's pets, toys or gifts

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

Keywords: animals, peta, toys, gifts

Presentation Preference: Oral

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

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

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 churchyard of 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.

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

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

Keywords: artefacts, Roman, social identity

Presentation Preference: Oral

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

The children of medieval and post medieval Copenhagen

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

Keywords: burial, child labour, children

Presentation Preference: Oral

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

Work and play at the early modern orphanage in Altenburg

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

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

Presentation Preference: Oral

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

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

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

Keywords: animals, peta, toys, gifts

Presentation Preference: Oral

This presentation aims to examine the relation of children and animals, as illustrated by animal-shaped objects used as toys or grave gifts, as well as animals used as pets by children from infancy onwards, or being presented as gifts to boys in adolescence (the fourth and final stage of childhood) by prospective lovers. Its ultimate goal is to explore the varying or changing attitudes towards animals, as set in particular social and chronological terms, and as based on one of the fundamental dualities permeating Greek thought (humans vs animals, Greeks vs barbarians etc). These attitudes are bequeathed to the “unshaped” members of society, children, as part of their upbringing and their training into their future social and gender roles. The main sources of evidence are depictions on Greek vases, mainly Athenian of the Classical period, in which daily scenes become very popular, supplemented by figurines of animals used as toys, as well as works of sculpture, such as funerary reliefs, showing children playing or fighting with animals. Animal-shaped toys, such as rattles, held by either toddlers or their nurses to fill them to sleep, include pig or wolf teeth, possibly meant to ward off evil. We hear of rocking horses in literature, or come across wheeled animals, mainly horses, for babies to push or pull; once they could walk or crawl. These are either depicted on vases or form figurines found in children’s graves. Birds, such as geese, ducks, swans, doves, were the favourite pet of both boys and girls, sometimes buried with them, if they died. Only rarely do we find caged singing birds. Youngsters were associated mainly with dogs and only occasionally with cats, of the Abyssinian breed that was imported to Athens, as well as exotic felines, such as cheetahs. These exotic cats, or occasionally also monkeys, were reserved for the rich youth of fifth c. Athens. Children also appear to play with goats or deer on vases, while we know that older boys could keep racehorses or hunting hounds, as part of their hunting or athletic activities. Pets are not only shown at play, but also being fed, walked, trained, or even mistreated. A special category of pets were discocks, often in fight, since they were used to evoke a pugnacious spirit in young boys. Moreover, cocks, as well as hares, tend to copulate a lot, so they are often suitably depicted as erotic gifts in the context of pederasty (boys’ love), along with other animals associated with hunting, such as deer, or pet birds, such as doves.
TH1-14 Abstract 14

Slave and servant children in Archaic and Classical Athenian art

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

Keywords: servant, slave

Presentation Preference - Poster

This poster will explore the life, activities and social status of working children in ancient Athens, as illustrated on vases and on funerary reliefs, dating from the 6th down to the 4th c. BC. Varying or changing attitudes towards child labor and slavery will be identified and discussed. Numerous slaves were used to support households, even the poorest ones, and productivity in many Greek city-states, greatly outnumbering their citizens. Children were a common source of labor in ancient Athens. They were not only slaves bought as such or born to slave parents, but also of lowly social status, or exposed at birth and taken in. Such working children are often depicted on vases or reliefs performing a wide range of menial chores. They are identified by their activities, since the offspring of citizens or well-off foreigners (medes) were only engaged with play or education at this age. Occasionally they are also singled out by their exotic racial features. Girls are usually shown serving women as maids, helping their mistresses to dress, or performing other household deeds. Boys are depicted assisting men in the palaistra or gymnasium, or at their workshops, or serving them at banquets. From a very tender age they were apparently put to hard labor; sometimes they are shown squatting, taking some rest and waiting for their masters’ call to fulfill their needs, even the most degrading, such as helping revellers 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. Chmiel-Chrzanowska, Marta, University of Szczecin, Szczecin, Poland (Presenting author)

Co-author(s): Fatzer, Rafał, 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, Torun, 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.
INTERPRETING THE ARCHAEOLOGICAL RECORD

TH1-15 Abstract 02

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 ‘sacred site’ 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 sites of this period has identified that burials were present in these locations. In this paper, a selection of these cult sites will be examined through detailed study of archaeological features, topographic features, as well as some written sources, above all Eddic poetry. The overall aim is to investigate how these sites facilitated rituals and ceremonies in terms of movement, acoustics and location of audience and ‘performers’.

TH1-15 Abstract 03

The Langeid cemetery - landscape, life and afterlife

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

Keywords: Cemeteries, Cult, Religion

Presentation Preference - Oral

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

The cemetery is highly interesting in two particular aspects, which will be contextualised with similar and/or contrasting examples. Firstly, it covers the very last part of pagan burial custom, at a time when surrounding regions had converted, and show mostly Christian burials. The religious shift in society seems to some extent to be reflected in accentuated pagan customs in remote areas. Secondly, there is evidence of fairly systematic reopening and manipulation of the graves not very long after the initial burials, which attest to not only activities relating to the actual burials, but also to a later consciousness of the cemetery and its contents, which can be argued to be ritual in nature, and could be interpreted as continued cultic activity on the site.

TH1-15 Abstract 04

Positioning ritual: Interpreting corpse postures in early medieval England

Author - Dr. Sian, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Anglo-Saxon, body, funerary archaeology

Presentation Preference - Oral

The notion of mortuary theatre encapsulates the drama and performativity of funerary tableaux in early medieval Europe. While the evidence for mortuary performance is more easily identified in exceptionally sumptuous burials, the narratives of the non-elite may be considerably more challenging to interpret, as a result of smaller-scale funerals and less material investment. However, even in the absence of ostentatious display of wealth, the corpse in the grave was heavily implicated in the early medieval mortuary theatre. The funerary body was progressively constructed and articulated through itspositional arrangement, clothing, and other accompanying features. This paper discusses the ritual significance of corpse positioning in early Anglo-Saxon inhumations, bringing together corpse-positional data from over 2000 graves from 33 cemeteries across England. Patterns of recurring corpse postures demonstrate that positioning ritual was consciously and meaningfully practiced in the early Anglo-Saxon period. Nuanced variations in positional preferences within and between cemeteries suggest that body representation was closely linked with the conception and expression of individual and group identities, locally as well as regionally. Addressing the role of the body in early Anglo-Saxon death rituals, this paper explores the belief and practice underlying the organisation of bodies in graves and attempts to unfold the hidden narratives behind the early medieval corpse.

TH1-15 Abstract 05

Christian and pagan: Eggs as grave goods in the Late Iron Age cemetery at Kukurse, NE Estonia

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

Keywords: Cemeteries, Cult, Religion

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 ‘sacred site’ 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 sites of this period has identified that burials were present in these locations. In this paper, a selection of these cult sites will be examined through detailed study of archaeological features, topographic features, as well as some written sources, above all Eddic poetry. The overall aim is to investigate how these sites facilitated rituals and ceremonies in terms of movement, acoustics and location of audience and ‘performers’.

TH1-15 Abstract 03

The Langeid cemetery - landscape, life and afterlife

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

Keywords: Cemeteries, Cult, Religion

Presentation Preference - Oral

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

The cemetery is highly interesting in two particular aspects, which will be contextualised with similar and/or contrasting examples. Firstly, it covers the very last part of pagan burial custom, at a time when surrounding regions had converted, and show mostly Christian burials. The religious shift in society seems to some extent to be reflected in accentuated pagan customs in remote areas. Secondly, there is evidence of fairly systematic reopening and manipulation of the graves not very long after the initial burials, which attest to not only activities relating to the actual burials, but also to a later consciousness of the cemetery and its contents, which can be argued to be ritual in nature, and could be interpreted as continued cultic activity on the site.

TH1-15 Abstract 04

Positioning ritual: Interpreting corpse postures in early medieval England

Author - Dr. Sian, Durham University, Durham, United Kingdom (Presenting author)

Keywords: Anglo-Saxon, body, funerary archaeology

Presentation Preference - Oral

The notion of mortuary theatre encapsulates the drama and performativity of funerary tableaux in early medieval Europe. While the evidence for mortuary performance is more easily identified in exceptionally sumptuous burials, the narratives of the non-elite may be considerably more challenging to interpret, as a result of smaller-scale funerals and less material investment. However, even in the absence of ostentatious display of wealth, the corpse in the grave was heavily implicated in the early medieval mortuary theatre. The funerary body was progressively constructed and articulated through itspositional arrangement, clothing, and other accompanying features. This paper discusses the ritual significance of corpse positioning in early Anglo-Saxon inhumations, bringing together corpse-positional data from over 2000 graves from 33 cemeteries across England. Patterns of recurring corpse postures demonstrate that positioning ritual was consciously and meaningfully practiced in the early Anglo-Saxon period. Nuanced variations in positional preferences within and between cemeteries suggest that body representation was closely linked with the conception and expression of individual and group identities, locally as well as regionally. Addressing the role of the body in early Anglo-Saxon death rituals, this paper explores the belief and practice underlying the organisation of bodies in graves and attempts to unfold the hidden narratives behind the early medieval corpse.
Interpreting the Archaeological Record

112

In 2010 two wealthy female inhumations were excavated in the conversion period (12th–13th century) cemetery at Kukruse, NE-Lithuania. Both women were exceptionally richly furnished and belonged to the nobility of this society. In addition to grave goods both inhumations contained egg shells, although these were recovered from clearly different contexts. In one burial the egg was laid between femurs, on top of her dress and ornaments. It was painted red and clearly displayed with apparent symbolic connotations. The egg from the second inhumation was found at the foot of the woman, next to a ceramic vessel. Both eggs have been identified as chicken eggs with ZooMS and microscopic analysis.

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

113

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

Author - Petrukas, Gediminas, Vilnius University, Vilnius, Lithuania (Presenting author)

Keywords: sacredness, the afterlife, topography of cremation cemeteries

Presentation Preference - Oral

In many cultures burial rites and the relationship with death and the afterlife are fundamental issues of existence. Death is considered as a passage from this world to the afterlife, therefore, burial is perceived as a direct reflection of connection between the living and the dead. Contrary to the established views, burial rites speak not only about the departed to the Paradise, but also about their 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 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, burning cremated deceased in burial grounds became a uniform burial practice.

In the present study, the main focus was on the spatial organization of burial places, though the topography of early Medieval Lithuanian cremation cemeteries is well investigated. The purpose of this paper is to analyse the burial practices that defined the spatial organization of the burial places, and the features of burial places. The burial places in the Lithuanian cemeteries had certain features that were crucial for the survival of the deceased in the otherworld. The burial places in the Lithuanian cemeteries were well designed to secure the survival of the deceased in the otherworld. The burial places were designed to ensure the survival of the deceased in the otherworld. The burial places were designed to ensure the survival of the deceased in the otherworld.
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, Mogilno, Poland (Presenting author)
Keywords: burial mounds, Luboszyce Culture, rituals
Presentation Preference - Oral
Archaeology shows that material remains found in the sacred space of cemetery reflect cultural, religious and social diversity. On that basis we can discuss about multi-faceted relationships between groups of humans, their habits and behaviours. Nevertheless, it is generally known that sepulchral objects are only final products of funeral ceremony which is both a rite of passage regarding the deceased (van Gennep 1909) and some kind of identity performance in order to consolidate community (Turner 1969).
On account of that, cemetery as the special space of transgression and communication between the living and the nether world should be perceived also in the context of its social function. The problem is that the Lower Lusatia region, as the area of Luboszyce Culture (Domaslawi 1978), was the frontier zone of different archaeological units (the Przeworski and Wielbark Cultures, as well as the Elbe cultural circle). Relics from there, for that reason, combine the various features of neighbouring cultures over the time. In facts, burial mounds dated from the middle and later Roman Period (II-V c. AD) are difficult to archaeological interpretation. For instance, some barrows with remains in cremation site (Horno, Kr. Spree-Neisse) are associated with the Przeworski Culture because of the warrior equipment inside (Janczak 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 (Tacitus, Germania) seems to be the key to reconstruct and study these ritual actions building new order and establishing social roles on the ground of symbolic ones (Turner 1982). Behaviours like that, because of peculiar cultural diversification in the borderland landscape, may have been resulted in creation of new patterns, including syncretic forms of funeral rites (Domaslawi 2010) and, perhaps, mythological narratives.

TH1-15 Abstract 11
The role of animals in the funeral rites of the population of the Przeworsk culture
Author - Dr. hab. Rodzińska-Nowak, Judyta, Institute of Archaeology, Kraków, Poland (Presenting author)
Keywords: animal symbolism, funeral rite, the Przeworski culture
Presentation Preference - Oral
On cemeteries of the Przeworsk culture many material traces of the diverse ritual behaviors are observed. Based on the results of recent studies, it is believed that a special role in the funeral rites of that culture in the Roman period was played by animals and related symbolism. Animal bone remains are relatively frequent in graves of people of both sexes, who belong to different age classes. Among them are represented the bones of mammals, both domesticated and wild. Among the burials of the Przeworsk culture many material traces of the diverse ritual behaviors are observed. Based on the results of recent studies, it is believed that a special role in the funeral rites of that culture in the Roman period was played by animals and related symbolism. Animal bone remains are relatively frequent in graves of people of both sexes, who belong to different age classes. Among them are represented the bones of mammals, both domesticated and wild. Animal remains in those cemeteries 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.

TH1-15 Abstract 12
The multicultural cemetery in Ułow (site 3, Poland) – the magic of the place or the random choice?
Author - Dr. Niesiadłowska-Wiśniewska, Barbara, Institute of Archaeology, Maria Curie-Skłodowska University in Lublin, Lublin, Poland
Co-author(s) - Wiśniewski, Tadeusz, Institute of Archaeology, Maria Curie-Skłodowska University in Lublin, Lublin, Poland (Presenting author)
Keywords: burial rites, multicultural cemetery, Ułow, SE Poland
Presentation Preference - Oral
Ułow is a small village in Lublin Voivodeship (SE Poland) situated in the region of Middle Roztocze. The complex of archaeological sites in the woods of Ułow was found by searchers with metal detectors who were looking for military items from the World War II. Among sites recognized during the archaeological excavations, there are two cemeteries dated to the late Roman Period and the Migration Period (sites 3 and 7) and two contemporary settlements (sites 9 and 10), separated from each other by a deep valley of rivulet, now, intermittent. At the same time, it is a border between two zones – sacrum and profanum. On site 3, except the cemetery dated to the 4th century A.D. – to the middle of the 5th century A.D. evidences of much older settlement were found. They are associated with the Late Palaeoletic, the Mesolithic, the Neolithic (the Lublin-Volhynia, Funeral Beaker and Corded Ware Cultures), as well as the Bronze Age, the early Iron Age (the Trzciniec and Lasutian 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 Ułow in all phases of the settlement is not an analogy in Polish lands. Therefore, the main question is why the people of so many cultures chose this place. Whether the settlement was associated with convenient geological and geomorphologic conditions or with cultural tradition, or whether it was the random choice.

TH1-15 Abstract 13
The area of the ritual activities.
Case studies of the cemetery in Paprotki Kolonia (NE Poland)
Author - Dr. hab. Karczewski, Maciej, Institute of History and Political Sciences, Białystok, Poland (Presenting author)
Co-author(s) - Karczewski, Małgorzata, The Research Centre of Central and Eastern Europe, Białystok, Poland
Keywords: cremation cemetery, rituals, Roman and early Migration Periods
Presentation Preference - Oral
The cemetery of the Bogaczewo Culture from the Roman and early Migration Periods in Paprotki Kolonia village, in the Masuria Lakeland, delivered several traces related not only to the cult of the deceased but also to another ritual activities which took place on the area of the cemetery. Multidisciplinary research conducted so far, revealed traces of the use of plants in the burial rite, the social structure reflected by the stratigraphy of graves, a close relationship between the location of the cemetery and environmental conditions and the use of the area of the cemetery as a place of sacrifices of horses. All these discoveries are changing and expanding existing knowledge of flat cremation cemeteries of Bogaczewo Culture, related to the Gañidzi tribe mentioned by Claudia Piotrem.

TH1-15 Abstract 14
Břeclav-Pohansko – the cemetery around the rotunda as a place for a cult of the dead
Author - PhD Prichystalová, Renjeta, Masaryk university, Brno, Czech Republic (Presenting author)
Keywords: Břeclav-Pohansko, collapsing time, early medieval
Presentation Preference - Oral
The early medieval stronghold Břeclav-Pohansko (southern Moravia, Czech republic) was important residential agglomeration of so-called Great Moravian Empire. In its north-eastern suburb Christian church with graveyard around was discovered. From years 2008 to 2012 there were found 152 graves. The various attributes of funerary features were explored there, for example the graves with presence or absence of funeral furnishing; with or without of wooden coffin; of interior stone construction and adjustment of the grave pits, the diversity in the cubage of grave pits or in the orientation of the deceased. The cemetery is dated to the turn of the 9th and 10th centuries. It is a time of the turbulent changes. The so-called Great Moravia was destroyed; the Christian civilization organization was weakened and for a time "pagan" idols of ancestors returned to power. In this time of uncertainty people buried their dead in this place. It is important to discover, how was this funeral space organized. The using of the usual archaeological analytical methods but also the application of multi-proxy methodologies (glassophase, isotopic, polimic, palynological analysis etc.) helps us to determine this knowledge.
Interpreting the Archaeological Record

In this World and the Next: Deviant Burial Rites

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 differential treatment is just now forming a systematic approach towards them. Recently the theme of deviant burials was reappraised in European archaeology, sometimes creating very heated debate over it. Simultaneously, the increasing finds of such untypical and strange character attracted significant interest from the media and the wider public on the matter, often turning the topic into academic grey area.

The present work is the first consistent archaeological study of this phenomenon on the territory of Bulgaria based on the archaeological findings and records and adopting long-term and theoretically aware perspective. It is based on pilot study undertaken to assess the potential for wider research on regional scale in Southeastern Europe. The paper will present the general conclusions at the current stage of the research and will illustrate the applied methodology and interpretations with certain case studies. The function of deviant burials in the increasingly complex legal culture of the medieval Bulgarian state and the impact of Christianity and the Church over it will be discussed. The close entanglement between sacred meaning and social evaluation of certain individuals can also be seen as a strategy to create and recreate social identities and memory within cemeteries and landscapes.

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

Presentation Preference: Oral

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 margin of separate and designate for some of the groups of society the activities 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.

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 to the presentation of cases from Argos (tumuli) and Mycenae (grave circles).

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

Presentation Preference: Oral

Aegaean burials as liminal performances

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

When the Late Bronze Age Aegaeans 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 consist of food and blood sacrifice, libations, gifts of non-consumable material objects, prayer and the payment of respect. The present paper brings forward the ritual activities performed at selected Aegean Late Bronze Age cemeteries through the reflection of the material remains and the analysis of the structural components of the tombs.

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

Presentation Preference: Oral

The Symbolic Meaning of Grave Goods

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

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

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

Presentation Preference: Oral

TH1-15 Abstract 17

Aegaean burials as liminal performances

Author: - Dr. Schallin, Ann-Louise, Swedish Institute at Athens, Göteborg, Sweden (Presenting author)

Keywords: Aegaean, burial, Performance

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

When the Late Bronze Age Aegaeans 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 consist of food and blood sacrifice, libations, gifts of non-consumable material objects, prayer and the payment of respect. The present paper brings forward the ritual activities performed at selected Aegean Late Bronze Age cemeteries through the reflection of the material remains and the analysis of the structural components of the tombs.

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

Presentation Preference: Oral

TH1-15 Abstract 18

The Symbolic Meaning of Grave Goods

Author: - PhD candidate Valotčiev, Šarčin, Lietuvos archeologijos institutas, Vilnius, Lithuania (Presenting author)

Keywords: Grave goods, Interdisciplinary method, Symbolic meaning

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

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

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

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

Presentation Preference: Oral

TH1-15 Abstract 15

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

Author: - Dr. Ciupercă, Bogdan Ioan, History and Archaeology Prahova County Museum, Ploieşti, Romania

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

Presentation Preference: Oral

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

We have a lot of information of this kind of social manifestation of groups, about the cemeteries. Did those information help 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.

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

Presentation Preference: Oral

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

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

Keywords: Bulgaria, deviant burials, medieval period

Presentation Preference: Oral

What is deviant burial and why it occurs are questions that have been part of archaeological thinking longer than we may assume. Nevertheless, the interest of such special cases where the deceased received noticeable differential treatment is just now forming a systematic approach towards them. Recently the theme of deviant burials was reappraised in European archaeology, sometimes creating very heated debate over it. Simultaneously, the increasing finds of such untypical and strange character attracted significant interest from the media and the wider public on the matter, often turning the topic into academic grey area.

The present work is the first consistent archaeological study of this phenomenon on the territory of Bulgaria based on the archaeological findings and records and adopting long-term and theoretically aware perspective. It is based on pilot study undertaken to assess the potential for wider research on regional scale in Southeastern Europe. The paper will present the general conclusions at the current stage of the research and will illustrate the applied methodology and interpretations with certain case studies. The function of deviant burials in the increasingly complex legal culture of the medieval Bulgarian state and the impact of Christianity and the Church over it will be discussed. The close entanglement between sacred meaning and social evaluation of certain individuals can also be seen as a strategy to create and recreate social identities and memory within cemeteries and landscapes.

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

Presentation Preference: Oral

TH1-15 Abstract 16
LITHIC RAW MATERIALS IN PREHISTORY: SOURCING, NETWORK DISTRIBUTION AND USE

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

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

Keywords: exchange, obsidian, sourcing

Presentation Preference - Oral

Starting in the Early Neolithic (ca. 6000 BC) obsidian from four island sources was acquired and distributed over great distances in the Central Mediterranean. In recent years, non-destructive analytical instruments, including portable X-ray fluorescence spectrometers (pXRF), have been used to determine the specific geological sources of thousands of obsidian artefacts from many sites throughout this region. Obsidian from the Aeolian island of Lipari was widely used in Sicily, Malta, peninsular Italy, and as far north as France and across the Adriatic Sea in Croatia. Obsidian from Pantelleria was regularly used on Malta and other islands south of Sicily, and to some extent in Tunisia, Sicily, and the island of Ustica to the north. Small amounts of obsidian from sources on Sardinia and Palermo made their way to southern Italy. Prior studies of the obsidian sources show multiple outliers for each, with differences in visual and physical features (e.g. colour, phenocrysts, translucency, brittleness) as well as in quantity, size, and accessibility. Importantly, pXRF analysis can distinguish between these subsources, including Gabellotto and Canneto Dente on Lipari, and Baia dei Turchi and Lago di Venere on Pantelleria. Consideration of these variables is critical in the understanding of obsidian access and selection, distribution, and use, and may be integrated with our knowledge of the availability and transportation of other material culture items (e.g. flint, greenstone, ceramics, animals, secondary products). The large number of artefacts from many Neolithic and Bronze Age archaeological sites now tested provides the opportunity to assess socio-economic changes over time, and variation based on location and lithic production methods, typology, and usage. Obsidian distribution patterns also provide better understanding of open water transport capabilities and directions, with Pantelleria 100 km from 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.
quartz, quartzite, sandstone. One of such non-flint raw processing cases are set out in the study of the Early Mesolithic Pasieniai-1 site in eastern Lithuania, where knapped porphyry, quartzite and sandstone material amounted to 15 percent of the total debitage from the site. These raw materials were reduced in manner of flint knapping (bipolar core + soft direct percussion + a blades and flakes as blanks). At the end of the Mesolithic, the situation changed dramatically and local fisher-hunter communities of north-eastern Lithuania made their contacts with people from the Valdai / Upper Volga Region and got access to sources of high-quality reddish flint. A few hundred years later, together with flint first nodules the first ceramic / pottery making tradition have reached the Lithuanian territory around 5800 cal. BC. The reddish banded flint was widely used in manufacturing of various types of microtools (backed blades, lancets) and working tools. The majority of blanks were struck from single platform conical cores using soft hammer percussion and pressure flaking. In some sites (Sudota-2, Sudota-4) about 1-5 percent of the debitage consists of such kind of flint. The imported grey flint from south Lithuania was also used but in much less quantity than in earlier times. The lack of high-quality flint raw material is quite visible in the majority of the Late Mesolithic-early Neolithic settlements’ assemblages from north-east and north Lithuanian, due of sizes of cores, tools and debris which are 3-10 times smaller than usual. Other kinds of rocks used widely for the production of special tools (axes, chisels, grinding stones, etc.), too. Daugava-Dyana river corridor was widely re-used at the turn of the Neolithic-Bronze Age, when the yellow flint was imported from the Valdai / Upper Volga region.

TH1-16 Abstract 06
Differences in the raw material preferences in Polgár–Coochslahom, northeast Hungary
Author - Ferágó, Norbert, Ethnós 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 Polgaetic, but in the Neolithic period also. The raw material preferences and choices became more indicative as more complex settlements and societies emerged. Chipped stones in different contexts teach us to take into consideration the many aspects of the prehistoric worldview. The case of the Late Neolithic site Polgár-Coochslahom 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 (futal and protof) 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 few 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 bear a significant meaning and, hence, 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 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 southwestern Norway, a large number of lithic artifacts 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 same region. For some time, this picture has represented a paradox in Norwegian Neolithic research. How are we to interpret the occurrence of these foreign objects? In order to shed light on this question, two assemblages of long-blades, representing all long-blade deposits in Norway, were subject to technological analysis. Though the blade assemblages were initially found 85 km apart (straight line distance), both technological and refining analyses provided positive evidence that all blades had been reduced from the same core, and thus probably by a single craftsman. These findings are discussed in terms of long distance trade and observed behavioural differences between southern Scandinavian farming communities and the foraging culture of southwestern Norway.

TH1-16 Abstract 09
Production, distribution and use of Final Neolithic flint axes in western Poland
Author - Pyżewicz, Katarzyna, Adam Mickiewicz University in Poznań, Poznań, Poland (Presenting author)
Co-author - Grużdź, Witold, Cardinal Stefan Wyszyński University in Warsaw, Institute of Archaeology, Warsaw, Poland
Keywords: flint axes, Poland, Final Neolithic
Presentation Preference - Oral
The paper presents selected issues related to the manufacture, distribution and function of the Final Neolithic axes in western Poland. The main subject of our study is flint axes associated with the Funeral 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 centers of axe production associated with the limestones from southern Poland and “Scandinavian flint”. Based on these results, we created models of chaine operatoire 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 axes only near to the prehistoric flint mines and their goods were imported to the other territories, or they journeyed as specialists who distributed and repaired the flint axes.
TH1-16 Abstract 10
Banded flint from Central Poland – new discoveries, new questions
Author - Sadowski, Michal, University of Cardinal Stefan Wyszynski in Warsaw, Warsaw, Poland (Presenting author);
Co-author - Budziszewska, Janusz, University of Cardinal Stefan Wyszynski in Warsaw, Warsaw, Poland;
Co-author - Grzędzicki, Witold, University of Cardinal Stefan Wyszynski in Warsaw, Warsaw, Poland;
Co-author - Jakubczak, Michal, Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw, Poland;
Co-author - Radzińska, Katarzyna, University of Cardinal Stefan Wyszynski in Warsaw, Warsaw, Poland
Keywords: banded flint, flint mining, remote sensing
Presentation Preference - Oral

Prehistoric banded flint mines were discovered on the northeast margin of the Świętokrzyskie Mountains near 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 “Krzenimierz”. Intensive research on prehistoric flint exploitation in the second half of the twentieth century was summarized during the VII International Flint Symposium. In recent years, one has returned to the research of flint mining using new technical possibilities. Geological survey showed the location of many kilometres of outcrops of banded flint in the southwest 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 great detail the entire course of banded flint outcrops from the NE margin of the Świętokrzyskie Mountains. This resulted in the discovery of yet another prehistoric point of exploitation. Also allowed to create detailed maps of all known prehistoric mining sites. These plans revealed a previously unknown method of exploitation and also changed our ideas and state of preservation of most sites. Verification surface survey of prehistoric banded flint mines resulted in the discovery of materials that show in new light the problem of access to resources and how they were used in the final Neolithic and Bronze Age.

TH1-16 Abstract 11
Still in Prehistoric Times? The mined flint for production of high quality tools in Dynastic Egypt
Author - Butalwa, Syliaa, Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw, Poland (Presenting author)
Keywords: Dynastic Period, Egypt, flint, mining, remote sensing
Presentation Preference - Oral

Flint as a material for the production of implements in Egypt was still common during the Bronze Age. It was caused mostly by the difficult access to copper and tin deposits and especially the costs of the production of metal tools. In contrast, sources of flint were easily accessible for everybody. Additionally, products of this raw material had a long durability and a low cost. Flint appeared almost throughout Egypt, but mined flint of better quality, was placed mostly in wadis, such as in Wadi al-Sharkh and Wadi al-Sajjar, Wadi Um Umm Habar and in Western Thebes. These places attracted the attention of researchers since the end of the 19th century. However, none of them has been comprehensively examined. Only recently research has been resumed. In the area of the 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-Cepegov I (Bükk Culture), Slovakia
Author - Alard, Pierre, CNRS, Nanterre Cedex, France (Presenting author)
Co-author - Klarc, Laurent, CNRS, Nanterre Cedex, France
Co-author - Homolcová Bibanka, Institute of Archaeology, Slovak Academy of Sciences, Nitra, Slovakia
Keywords: Early Neolithic, lithic technology, obsidian
Presentation Preference - Poster

This paper will present the result of a new study of the site of Kašov-Cepegov I in eastern Slovakia. Excavations at Kašov were led by Ladislav Banesz during the mid-1980s. Excavations revealed one pit with hundreds of obsidian waste concentrations and associated decorated pottery sherds belonging to the Bükk Culture (Banesz 1991). The exploitation and trade of obsidian is usually linked to the Bükk Culture. Previous analyses of chipped stone industries from various sites have shown that obsidian 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 major operator of obsidian debitage at Kašov is quite an original Neolithic obsidian debitage production. 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 Kalov can rather be interpreted as a domestic assemblage. The obsidian production does not differ much from other blade productions made in limnoquartzite or radiolarite described on other Bükk sites. We believe that the blade debitage of the pit at Kalov belongs to a laminar tradition that appeared in the Early Phase of the ELC in eastern Slovakia.

TH1-16 Abstract 13
In search of a non-destructive way of identifying lidite in archaeological lithic assemblages
Author - Hanninen, Mikael A., University of Oulu, Museum of Cultural History, Helsinki, Finland (Presenting author);
Co-author - Anttiroiko, Niko, Archaelogical Field Services, National Board of Antiquities, Helsinki, Finland;
Co-author - Heiskilä, Pasi, University of Helsinki, Department of Geosciences and Geography, Helsinki, Finland;
Co-author - Pesonen, Petri, Archaeological Field Services, National Board of Antiquities, Helsinki, Finland;
Co-author - Talaskar, Aleksey, Karelian Research Centre, Russian Academy of Sciences, Petrozavodsk, Russian Federation
Keywords: Lake Onega, Mesolithic, Fenoscandia, Russia, lidite, shungite, lithic provenance analysis
Presentation Preference - Poster

Lidite is a low grade metamorphosed siliceous sedimentary rock consisting of quartz and approximately 5% noncrystalline shungite carbon. The rock has a cohnichol fracture but often contains internal flakes while the noncrystalline carbon gives it a pitch black colour. In Northeastern Europe deposits of this raw rock type can be found only on the north-western shores of Lake Onega in Russia among other shungite-bearing rocks. The Onega 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 Jokivarri 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 Jokivarri 1 artefacts a radiocarbon date indicates a contemporaneous Late Preboreal human presence on the northern shores of the Onega Lake. In order to identify the raw material of the Jokivarri 1 artefacts, a multidisciplinary research project was designed with two aims: 1) to identify the raw material of the Jokivarri 1 artefacts using a variety of (petrological) analytical 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 - Wieira, Dagmar 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. Linienbandkeramik communities, in Chelmo Land, distributed good quality siliceous rock. Some of them were distributed over dozens of kilometres. On the sites “imported” flints were predominant. Among the most important are the “chocolate” flints from the northeast margin of the Świętokrzyskie (Holy Cross) Mountains, and Jurassic-Cracow flint from the Polish Jura, near Krakow. From 14 inventories from Chelmo Land we analysed 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 archaeological 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 Linienbandkeramik communities’ exchange and distribution of siliceous rock. Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2, UMO-2011/03/N/H35/03973).
This study is an analysis of local flint pebble 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 analyze knapping strategies and techniques that were used in each dwellings 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 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 technique as well. The secondary dwelling group consists of dwellings where the quality of a flint pebble did not affect the reduction strategy. In these dwellings both poor quality local flint pebbles and all kind of imported flint pebbles were transformed and used as platform cores and irregular multidirectional cores. In these dwellings flakes from local flint are more like flakes from imported flint - thinner and mostly with a flat striking platform. If the results of this study are compared with the study of pottery in the Sārnate settlement by Valdis Bērziņš, then the first group consists of dwellings where raw material quality affected the pebble reduction strategy are mostly those where were used local pottery tradition: dwellings with Early Sārnate Ware and dwellings with Late Sārnate Ware, while in dwellings where raw material quality did not affect pebble reduction strategy Typical Combi Ware pottery was mostly used.

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 - Prošek, Lukáš, Department of Chemistry, Masaryk University, Faculty of Science, Brno, Czech Republic;
Co-author - Pátek, Jan, Department of Geological Sciences, Masaryk University, Faculty of Science, Brno, Czech Republic;
Keywords: Czech Republic, Neolithic, obsidian
Presentation Preference - Poster
The poster summarises the results of the first geochemical analyses of prehistoric obsidian artefacts from Bohemia (Czech Republic, Central Europe). The analyses focused on eleven samples with reliable find contexts. The majority of the samples come from the Neolithic period (Linear Pottery Culture: LBK; 5500–5000 cal. BC; Brokez Pottery Culture: STK; 5000–4500/4400 cal. BC) based on the data obtained, it is possible to locate the raw material of nine samples to the Slovakian source called Carpathian 1b (Brno – Jákov). However, the raw material of the two remaining samples dated to the same period comes from Hungarian sources, Carpathian 2b (Ózdbejvice – Olaszliszka). It is therefore evident that in the Neolithic period, obsidian from local flint resources and Slovakian Carpathian sources was used in Bohemia. Both sources are more than 500 km away from the sites studied, which suggests that direct access to the sources is highly unlikely. There are two possible explanations. Either, the obsidian raw material was transported to the Bohemian territory with the primary aim of gaining the raw material as such (good quality, black cortex, disregarding its source. Thus, the final evidence of the two sources in the site is the result of a pure coincidence. The other explanation is based on the possibility that different societies (settlements) had different demands or exchange strategies.

Chocolate flint extraction points and workshops in Oronsko, Poland. Spatial and functional analysis
Author - Kierzkowski, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)
The Flint Inventory of the Neolithic and Bronze Age from the sites at Żylicy (western Belarus)
Author - Valenty-Scherbach, Sviatana, Institute of History NAS of Belarus, Minsk, Republic of Belarus (Presenting author)
Keywords: flint industry, Neolithic, Pre-Celtic Neman culture
Presentation Preference - Poster
Oronsko 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 Pobiti district, Masovian voivodship. The history of research in this area began in the early XX century, when S. Krukowski discovered numerous sites connected with the exploitation of local raw materials that are dated from Late Paleolithic to Early Bronze Age. However, during this research, the use of underground, mining methods there was also confirmed, and dated as early as the Late Paleolithic and probably Early Bronze Age. A lot of the sites known from archival research (conducted also by other researchers) have already 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 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 (of which a lot of 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 Paleolithic and Mesolithic) settlement organisation system in the vicinity of the flint outcrops, its preferences and dependence on natural conditions, as well as the efficiency of chocolate flint prospectivity and mining in different periods of the Stone Age.

Analysis of household units from chipped stone tools at Alsónyék–Bátszék (Hungary)
Author - Szőgyi, Kata, Eötvös Loránd University, Budapest, Hungary (Presenting author)
Keywords: chipped stone tools, Late Neolithic, Lengyel culture
Presentation Preference - Poster
Alsónyék–Karizsa-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 on the typological and technological analysis and the aspect of household archaeology. The settlement’s collection is processed in the aspect of household archaeology, which research method has gained ground in the last few years. This is backed by favourable conditions, such as the large-scale excavations joined by large-scale construction projects, and the archaeologist’s more frequently used “toolbox”, including new types of analyses in natural sciences. The technical analysis of the chipped stone tools provides an opportunity to reconstruct the tool making procedure, which may result in the tool production system of a cultural unit. The operation of the creating procedure, the phases of the sequence show the tool making place and aspect / character in the site on a rudimentary level. This method enables the localisation of the activity zones within the settlement. The activity zones, defined from the results of the technological analyses on all kind of artefacts, determine the final household units. The settlement structure at Alsónyék comprises large pits, which contain the great majority of the chipped stone tools. The 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 scope of differences between typological categories of the household units, the procedures of tool making are located partway within the site.

The Flint Inventory of the Neolithic and Bronze Age from the sites at Żylicy (western Belarus)
Author - Valenty-Scherbach, Sviatana, Institute of History NAS of Belarus, Minsk, Republic of Belarus (Presenting author)
Keywords: flint industry, Neolithic, Pre-Celtic Neman culture
Presentation Preference - Poster

Keywords: chocolate flint, Oronsko, Palaeolithic
Presentation Preference - Poster
Keywords: Late, Neolithic, pebble reduction strategies
Presentation Preference - Poster
Keywords: Chocolate flint, Oronsko, Palaeolithic
Presentation Preference - Poster
Keywords: chocolate flint, Oronsko, Palaeolithic
Presentation Preference - Poster
Keywords: chocolate flint, Oronsko, Palaeolithic
Presentation Preference - Poster
There are eight multicultural sites known near Žyličy village (Hrodna district). Open-air settlements dating from the Final Palaeolithic until the late Middle Ages are located on the upper and lower terraces of the left bank of the Neman River. Five of them were excavated between 1999 and 2011. The first inventories from sites 1 and 4 comprise mainly debitage products, which makes it difficult to determine their cultural attribution. Materials from sites 1, 2 and 4 are more characteristic and allow the industries 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: Pripyat-Neman and Neman Cultures, the Circle of the Corded Ware Culture, and the Trzeciorzec Culture.

TH1-16 Abstract 20
Application of morphometric methods for the lithic analysis based on 2D and 3D visualizations

Author - Zaina, Liga, University of Latvia, Riga, Latvia (Presenting author)
Co-author - Kairins, Marcis, University of Latvia, Riga, Latvia
Co-author - Begins, Valdis, University of Latvia, Riga, Latvia
Keywords: 2D and 3D visualizations, morphometric methods, stone tools
Presentation Preference - Poster

Traditionally, tools are regarded as indicative for characterization of ancient cultures and many of the prehistoric cultures have been distinguished mainly based on the characteristic shapes of tools and applied processing technologies. The relatively high level of preservation of stone artefacts determines their special value in prehistoric studies, especially regarding the most ancient periods. Studies to date confirm the importance of morphology analysis not only for typology and classification, but also for tracing similarities, differences and transitions of shape characteristics comparing archaeological evidences in temporal and spatial context. Moreover, morphology analysis of artefacts reflects also ancient men knowledge, skills and cognition. Morphology analysis quantitatively can be carried out using morphometric methods. Traditional morphometric methods used in archaeology mainly correspond to linear measurements, however, such data do not characterize shape, but refer just to some shape features (e.g., size, certain proportions), thus, such data are not complete. Important contribution to improvement of morphometric methods has been 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 a methodology 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 used also as a method for obtaining data for wider comparisons and determination of standard characteristics of artefact shapes. The mentioned indicates that it is necessary to develop a comprehensive morphology analysis of artefacts and one of top approaches is 3D visualization. Accordingly, in the study were conducted experiments in which the 3D models of pebbles and lithic artefacts were created using Aicon Breuckmann smartSCAN 3D scanner and software OPTOCAT. As well the objects were visualised in 3D by Agisoft PhotoScan Professional and MeshLab. The studied objects had dimensions from 0.5-20 cm. Subsequently, application of morphometric methods for the lithic analysis based on 2D and 3D visualizations will form a significant discussion of medieval buildings, their study, and their meanings.

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

Author - Dr. Weikert, Katherine, University of Winchester, Winchester, United Kingdom (Presenting author)
Co-author(s) - Barry, Terry, Trinity College Dublin, Dublin, Ireland
Co-author(s) - Bourqui, Stefano, University of Oxford, Oxford, United Kingdom
Co-author(s) - McPeak, Scott, University of Oxford, Oxford, United Kingdom
Co-author(s) - Swallow, Rachel, University of Oxford, Oxford, United Kingdom
Co-author(s) - Greaves, Mark, British Museum, London, United Kingdom
Co-author(s) - Weikert, Katherine, University of Winchester, Winchester, United Kingdom
Keywords: buildings, medieval, space
Presentation Preference - Oral

This paper focuses on the interpretation of space at manorial sites in Normandy from the central medieval ages, and what spatial analysis can provide to a social meaning of a building. Focusing on research undertaken at manorial sites in Calvados, this paper suggests that considering spatial aspects of medieval buildings provides a heightened awareness to the society using these places, particularly in examining the ways in which social authority would be embodied or enacted through the material trappings as well as the spatial indications of the buildings. This paper will ultimately demonstrate the varying applicability of spatial analysis in considering social interpretations of buildings particularly for interdisciplinary studies of buildings and societies. This is seen through the Norman and English case studies of the paper, in seeking to discern aspects of the relationships between these intertwined societies of the central middle ages. Overall the paper will demonstrate that the utilization of spatial analysis can be used not only to deepen an understanding of society and their buildings, such as those in Calvados in a period of cultural exchange, domination, and altering views of authority, but also that the use of this method can further illuminate aspects of space and society by using a different lens to view the Norman worlds of the central middle ages.

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

Author - Dr. Swallow, Rachel, Altrincham, United Kingdom (Presenting author)
Co-author(s) - Swallow, Rachel, Altrincham, United Kingdom
Co-author(s) - Weikert, Katherine, University of Winchester, Winchester, United Kingdom
Co-author(s) - Swallow, Rachel, Altrincham, United Kingdom
Co-author(s) - Bregazzi, Leo, Altrincham, United Kingdom
Co-author(s) - Weikert, Katherine, University of Winchester, Winchester, United Kingdom
Keywords: Castles, Cheshire, Frontier
Presentation Preference - Oral

Landscape studies have seen considerable recent debate, resulting in the development of an interdisciplinary research environment. This rethinking of castle studies by promoting new approaches and interdisciplinary research is seen through the work of the county of Cheshire in north-west England has been heighten awareness, perhaps because few medieval documents exist for the county, and because relatively little archaeological excavations and survey have been undertaken on the county’s castles. Interdisciplinary landscape research for Cheshire’s castles therefore distinguishes itself from previous studies, in its recognition, definition and presentation of the entire medieval county of Cheshire as a medieval frontier. Considered separate from England by its contemporaries, this frontier, and the unique power of the ealds of Chester, provided the context for the multifarious purposes and forms of Cheshire’s castles. Placing the construction of the castle within the political framework of
Anglo-Welsh social and political relations is therefore an original dimension of this paper to both castles studies and to the study of
the medieval March of Wales.

However, the frontier of Chevrette 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 to 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 osciwal versus English cultural identities based on false or irrelevant,
modern, and thus constructive, historic time periods and temporal boundaries.

TH1-17 Abstract 03
The archaeology of medieval buildings in a borderland: a study-case
Author - Dr. Istrate, Daniela Veronica, Braov, Romania (Presenting author)
Keywords: buildings archaeology, medieval church, Transylvania
Presentation Preference - Oral

My paper will explore the region of central-western Romania, commonly known as Transylvania, in the first centuries of the second
millennium. This region was part of the kingdom of Hungary, but was in fact located on a confessional and ethnic frontier, between
Orthodox and Catholic Europe, and in an area of bewildering ethnic and linguistic variety—the factors that would explain the rich
textuality of cultural keywords that we are going to use in this paper. These regions, which are characterized by a rich historical
ambiance, are a witness to the interaction of cultural and political forces that led to the emergence of new identities and
manifestations of cultural heritage. These regions, which are characterized by a rich historical ambiance, are a witness to the
interaction of cultural and political forces that led to the emergence of new identities and manifestations of cultural heritage.

Archaeology is indispensable for the understanding of the early period (10th-13th c.), for which there are very few, if any
written sources. Although the study of built structures is a relative new sub discipline in the field of medieval archaeology, in the
last decades has brought important contributions to the better understanding of the history of this area.

In my paper I will provide an accurate overview of this topic and focus on the ruined church uncovered recently in Alba Iulia
fortress—the oldest medieval church ever found north of the Lower Danube. The ruins were unexpectedly discovered during
structural works, in a very complicated stratigraphic context, consequence of the use of the area during the last two thousand years.
Prehistoric, Roman, post-Roman, Neolithic, and medieval times were preserved beneath the church, which was in use for about a hundred years, until it was in turn pulled down during the second half of the 11th century, when the first
Roman-Catholic Cathedral was being built. Subsequently, the ruins were disturbed and partly destroyed by the 11th-12th centuries’
military camp and later by numerous medieval and modern intrusions. The analysis of this discovery (archaeological context, architectural features, building materials) offers an unique opportunity to explore the history of the Carpathian Basin around the year 1000.

TH1-17 Abstract 04
PETRAPLOSA. Building and historical development of medieval fort
Author - M.A. Viljüč, Josip, Croatian Conservation Institute, Svetvinčenat, Croatia (Presenting author)
Keywords: development, Medieval fort, preliminary reconstructions
Presentation Preference - Oral

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

TH1-17 Abstract 05
Medieval Roof Trusses in the Swedish landscape of Västergötland
Author - Master Gullbrandsson, Robin, Västergötlands Museum, Skara, Sweden (Presenting author)
Keywords: Medieval churches, Medieval roof structures
Presentation Preference - Oral

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

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

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

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

From the end of the 12th century up until the beginning of the 16th century, very few construc-tions are preserved. Probably
there were not exists 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.

TH1-17 Abstract 06
The Cathedral of Anagni.
The 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 Ol- trarapennsylvania of 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 diseases 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—located in an important medieval city in Southern Lazio—was undertaken. Today this church presents a
Romanesque architectural style, as designed and developed by Bishop Peter from Salerno, in the eleventh century. However, its
history dates back at least two centuries earlier. A comparison between archaeological data and written sources points to the
hypothesis that the first cathedral was built in the ninth century by Bishop Rumualdus in a place 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 chartals and landed properties attributed to the
cathedral. The inscriptions, characterized by strong stylistic and palaeographic similarities, are engraved on parts of sculptural
ornaments belonging to the liturgical decoration of the ninth century church. The examination of these inscriptions has generated
two results. Firstly, a reconstruction of the extent and importance of the land donated to the church; secondly, a hypothesis about
the original location of the marble pieces today decentralized by their display in a museum. The decoration enriched with
inscriptions has an even more important value if we consider that many of the fragments were consciously reused by Bishop Peter
from Salerno for the Romanesque makeover with a clear symbolic intent of reconnecting with a historical moment of supremacy
of the Roman Church in which bishops, as local representatives, were the pinnacle of territorial power.

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

This paper questions 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

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 hospitals 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 Chancries 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, is lacking. Previous archaeological discussion of English medieval hospitals have focussed specifically on the intramural hall and chapel, the most likely elements to survive as standing remains, and have otherwise noted little overall planning to the site. If the rest of the buildings, such as kitchens or dormitories, are studied at all. Archaeologically, despite the ever increasing number of excavations from across the country, there has only been limited synthesis, the most complete by Roberta Gilchrist in 1995. In both fields the great variation in the nature and form of these buildings across the country has been noted and described as random, but medieval hospitals acted within a form of spiritual economy that also included institutions such as monasteries, nunneries, friaries and chantries. Despite the overwhelming religious nature of these institutions, the underlying presence of a structure to their space has never truly been investigated.

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

---

**TH1-17 Abstract 08**

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

**Author:** Ranzinger, Mario, Heidelberg, Germany (Presenting author)

**Keywords:** Geoarchaeology, Monastery, Settlement

**Presentation Preference - Oral**

This question is the central part of a beginning master’s thesis dealing with geoarchaeological methods and how they can help us interpret archaeological evidence regarding settlement, landscape and the human impact on landscape and nature. The monastery of Rinfenach, 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 geological prospection data, cores from swamps or columns and other archives could give us hints and reliable data about the first activities there and tell us, whether the foundation of the monastery really was the beginning of human settlement in the forest. Another advantage is that the combination of geoastronomical, geographical 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 geoastronomy and its necessity to create reliable data that can be well interpreted and answer archaeological and historic questions.

---

**TH1-17 Abstract 09**

**Medieval Oslo's Masonry Buildings Revisited**

**Author:** Bau, Egl, Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)

**Keywords:** Masonry buildings, Norway, Social topography

**Presentation Preference - Oral**

Recent excavations in Oslo’s medieval town revealed two masonry cellars close to the episcopal complex. Both cellars date to the late 13th or early 14th century, i.e. the high-medieval period in Norway. Most excavated masonry cellars in Oslo are interpreted as late- or post-medieval.

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

---

**TH1-17 Abstract 09**

**Medieval Oslo's Masonry Buildings Revisited**

**Author:** Bau, Egl, Norwegian Institute for Cultural Heritage Research, Oslo, Norway (Presenting author)

**Keywords:** Masonry buildings, Norway, Social topography

**Presentation Preference - Oral**

Recent excavations in Oslo’s medieval town revealed two masonry cellars close to the episcopal complex. Both cellars date to the late 13th or early 14th century, i.e. the high-medieval period in Norway. Most excavated masonry cellars in Oslo are interpreted as late- or post-medieval.

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

---

**TH1-17 Abstract 10**

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

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

**Keywords:** Building and property, medieval town, Norway

**Presentation Preference - Oral**

Since 2013 the Norwegian Institute for Cultural Heritage Research has been excavating several sites in the medieval town of 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 town, was introduced around 1216. This law regulated metalworking activities to the fringes of the town because of the risk of fire. The excavated building was destroyed in a fire, demonstrating the need for such regulations.

---

**TH1-17 Abstract 11**

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

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

**Keywords:** Buildings, Identity, Symbols

**Presentation Preference - Oral**

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

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

---

**TH1-17 Abstract 12**

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

**Author:** Whatley, Stuart, Museum of Copenhagen, Copenhagen, Denmark (Presenting author)

**Keywords:** Buildings, Landscape, Medieval

**Presentation Preference - Oral**

From the Early Medieval period onwards, the harbourside of Copenhagen was constantly developed to provide a safe and profitable harbour for shipping and trade. By the 1400s, the harbourside had expanded southwards to Gammel Strand, and this area became...
the central area of the harbour in Copenhagen. At this location a new set of administrative public buildings focussed on trade were constructed, with the newly created land to the north, east and west developed into private housing for the elites. A curious mix of maritime industry, administration, elite private housing and the fishing industry existed side by side in a way that would not occur in modern times. The buildings were located on the southern border of Copenhagen, and marine border to the Baltic Sea.

The aim of this talk is to discuss the Late Medieval and Early Renaissance buildings uncovered in the Metro Citing excavations in relation to the development and later use of the area. From a combination of structural evidence, artefact remains and natural science evidence a picture emerges of how the structures were built, where the building materials were transported from, who would live there and how the buildings were used.

TH1-17 Abstract 13
Urban life in an early byzantine small scale house
Author - M.A. Steinborn, Miriam, Römisch Germanisches Zentrum Institute, Mainz, Mainz, Germany (Presenting author)
Keywords: Byzantine, Excavation, Household
Presentation Preference - Oral

The early byzantine settlement of Caricin 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 Caricin Grad take place since 100 years. The early campaigns concentrated on representative buildings like churches, while the emphasis nowadays is on the living quarters. Considering the concept and methodology of Household Archaeology, one single room house was excavated in 2014 and 2015 in high resolution with integration of archaeobiology and soil science. The finds indicate a habitual function.

The interpretation of the building bases on the results of the interdisciplinary research. The simple configuration of the house and the multiplicity of potential types of use in a single room structure challenge the examination. This is the crucial point where field work and the theories of Household Archaeology come together. Working with an elementary constructed house and a few objects connected with specific activities restrict the possibilities which houses with many rooms and outdoor-areas may provide. It is necessary to examine the activities in- and outside the building to understand the function the household fulfilled in the settlement system regarding social, religious and economic aspects. The building accommodated one or more persons who belonged to the feudal lord or to the low social stratum. Taking their perspective on the settlement raises the question of their everyday life. The household can be seen as the place where social roles are negotiated in daily routine and thus as a social landscape which reflects the mentality of the dwellers. The analysis of installations and formation processes helps to understand activities carried out in daily routine and how the domestic space may be used. The distribution of finds is imbalanced between the inside of the house and its exterior what 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 pattern may indicate cultural but also economic transformations which concerned the ordinary people directly.

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

TH1-17 Abstract 14
The Formation of the three-compartment rural house in medieval Central Europe
Author - Associate Prof. Varèke, 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/groundy (mostly in Eastern Central Europe) or a byre (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. Sofield, Clifford, University of Oxford, Oxford, United Kingdom (Presenting author)

Deliberate deposits of animals, vessels, and other artefacts are persistent (if rarely) discoveries in and around buildings throughout early medieval Europe. Sometimes called “foundation deposits”, such discoveries have traditionally been interpreted as offerings (e.g. as blessings upon a new building, charms to ward evil off), 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 dooryards. 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.”

TH1-17 Abstract 16
Architecture decoration from Malikoto kale near Voden, Bulgaria
Author - Bakarzhevi, Stefan, Regional historical museum - Yambol, Yambol, Bulgaria (Presenting author)
Keywords: architecture decorations, ceramic decorations, Medieval castle
Presentation Preference - Poster

Malikoto kale represents Medieval castle. The site is situated near Voden Village. It’s situated on small pick accessed only from South. The area of the site is 0.09 ha. The castle appeared in 10 c. when modern-day Bulgarian lands are included in the borders of Byzantium Empire. Malikoto kale is destroyed at the end of 12 c. during the Third crusade, led by Friedrich Barbarossa (1122 - 1198). In 1189 year German crusades crossed the territory on whole Thrace on their way to Holy Lands.

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

TH1-17 Abstract 17
The Alp Fenga - Analysis of a post medieval alpine dairy but in the Silverta Alps
Author - Ranzinger, Mario, Heidelberg, Germany (Presenting author)
Keywords: Alps, Dairy Farming, Interdisciplinary
Presentation Preference - Poster

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

Beginning in 2007 with a field survey it has been excavated in three campaigns. Due to the project “Rückwege” there should be created a record of human activities and environmental changes within this region. The building can be interpreted due to the finds, results and historical notes. For example the ground plan of the huts has similarities in the 16th/17th century. Furthermore with the help of dendrochronological examination, analysing finds (e.g. the only coin) and historical maps this dating could be verified. Although this building is meant to be build in the 18th/19th century, we also have clues and written evidences that the pasturing activities already started in the medieval period.

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

TH1-17 Abstract 18
Possibilities to interpret of Vilnious old wall bricks using geochemical research method
Author - Sarcevičius, Saulius, Lithuanus instiutus institutes, Vilinus, Lithuanius (Presenting author)
Co-author(s): - Tarasievicius, Rirdas, Nature Research Centre, Vilnius, Lithuania
Keywords: brick, geochemical, Vilnious
Presentation Preference - Poster
The rise and development of brick production in Vilnius, the capital of the former Grand Duchy of Lithuania, was inspired as strategically important craft. The production of bricks has been changing and improving during more than seven centuries. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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.

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, Sr, P, Pt, Zr, Zn, Pd, etc.).

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

**TH1-18 Abstract 01**

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

**Author**: Polani, 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.

These observations are exponentially significant in the study of past societies. In archaeological analyses major transformations become recognized mostly through detectable and durable broad scale ruptures in the articulation of people and material resources. Most processes leading up to such events remain invisible. The goal of this paper is to provide a theoretical framework for the analysis of social 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.

**TH1-18 Abstract 02**

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

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

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

**Presentation Preference**: Oral

The Neolithics societies of southern Scandinavia were clearly demarcated from those of the Mesolithic by labour-intensive, large-scale construction works such as monumental tombs and enclosures. However, we do not yet see the long-distance, monopolized exchange of metal and prestige items that characterises Bronze Age societies from period II onwards, and which bear witness to a chiefdom organisation.
How then should we perceive the Late Neolithic and Earliest Bronze Age societies of southern Scandinavia?

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

Hoard and deposition show the display of wealth and surplus, probably deposited as the culmination of large gatherings and feasts, which included the distribution of food and drink. The variation in length evident in contemporaneous barrow type indicates that the data which are described as ‘elite’ Early Neolithic graves were as equally important to the wealth and power of their owners. This might a point to a special demand of the Bronze Age Societies.

A new typology of barrows is a result of an increasing use to study the relationship between individual interactions and group level behaviours. The heritage and depositions show the display of wealth and surplus, probably deposited as the culmination of large gatherings and feasts, which included the distribution of food and drink. The variation in length evident in contemporaneous barrow type indicates that the data which are described as ‘elite’ Early Neolithic graves were as equally important to the wealth and power of their owners. This might a point to a special demand of the Bronze Age Societies.

By doing so I hope to present and explore the social transformations that must have occurred during the Bronze Age in relation to the barrow. Inspired by Judith Butler and her concept of citation in performance theory, I understand the graves as composed of references to the founding burial practice and not as an instance of the supposed rising role of the individual.

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

I use these barrows as an example on which I want to explore the ways in which the modernist concept of ‘individual’ have been used to interpret the change in funerary practices, or, to put it more explicit – how the modernist concept of individual proliferates into the discussion of features within archaeological context. My aim is not to refute the idea of the individual altogether, but to explore other potential productive ways of interpreting the funerary practice based on closer analysis of the barrow. Inspired by Judith Butler and her concept of citation in performance theory, I understand the graves as composed of references to the founding burial practice and not as an instance of the supposed rising role of the individual.

TH1-18 Abstract 05
Investigation of transition phases by the example of the Bronze Age amber finds in northern Germany

Author: Dr. des. Woltermann, Gisela, Postdoctoral Researcher, Germany, Münster, Germany (Presenting author)
Keywords: Amber finds, Bronze Age, Northern Germany
Presentation Preference: Oral

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

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

TH1-18 Abstract 06
Finding a place to call home: an analysis of Bronze Age settlement change in South West Britain

Author: Caswell, Edward, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Bronze Age, GIS, Settlement
Presentation Preference: Oral

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

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

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

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


TH1-18 Abstract 07

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

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

Keywords: Monumenality, Social organisation, Wessex

Presentation Preference - Oral

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

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

They argued that functionalist, social evolutionary models like Renfrew's (1973) were simply a means of making the historically specific and unfamiliar comprehensible (Barnett 1994: 181). In fact, the actions and experiences of individuals – the very things that actually constitute human history – were erroneously being written out of these overly generalised accounts of the past.

This postprocessual view garnered particular popularity within the field of British prehistoric monumentality and, from the mid-1980s onwards, there was a rapid move away from quantifying the intrinsic properties of Neolithic monuments towards a structuralist consideration of the kind of social orders their form, material, or position in the landscape could have embodied (e.g. Parker Pearson and Richards 1994). This theoretical shift allowed archaeologists to successfully rethink narratives of monumentality around the individual but it also had two other consequences. Firstly, the empirical basis of Renfrew's (1973) thesis was never thoroughly interrogated (though see Starlin and Bradley, 1981) and, secondly, alternative narratives of how changing monumentality fitted into large-scale upheavals within social organisation were eschewed.

This paper attempts to redress this imbalance by critically examining Renfrew's (1973) claim that the labour expended on constructing prehistoric monuments steadily increased over time. Renfrew's (1973) methods are reviewed, replicated and his sample expanded so that a more comprehensive but comparable set of data are generated. These data are subjected to statistical analysis and 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.

TH1-18 Abstract 08

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

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

Keywords: Bronze Age Denmark, craft specialization, lithic technology

Presentation Preference - Oral

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

TH1-18 Abstract 09

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

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

Keywords: Itinerant craftsmen, Metalcraft, workshop organisation

Presentation Preference - Oral

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

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

TH1-18 Abstract 10

Dynamics and transformation during the Late Bronze Age of western Norway

Author - Ass. Prof. Aftneset, Nils, University of Bergen, Bergen, Norway (Presenting author)

Keywords: EBA-LBA, Materiality, Transformation

Presentation Preference - Oral

This paper aims to take an in-depth look at the changes that take place during the transition from the Early Bronze Age (EBA) to the Late Bronze Age (LBA) in western Norway. Traditionally western Norway had a central position during the Late Neolithic and EBA, but during the final transformation of the Bronze Age, there is an apparent change in relations and material culture in the LBA. It has been argued that the region loses much of its significance to the cost of eastern Norway. Therefore, this paper will look at the materiality including changes in burial patterns and the use of various raw materials of the LBA in western Norway and correlate this with possible changes in economic structures and agricultural practice. This will be combined with the broader north European pattern of changes in order to understand the social dynamics involved in these processes.

TH1-18 Abstract 11

Social dynamics in Bronze Age Scania

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

Keywords: Bronze Age, Cultural landscape, Social dynamics

Presentation Preference - Oral

In south Scandinavia an interesting turning point appeared around 1200 BC when the tradition of building mounds came to an end and was replaced by urn burials. New excavations in south Sweden (Scania) demonstrate the urn burials to be organized as grave-fields possibly related to individual farms. In parallel to these changes the number of different grown crops expanded and the tradition of building very large longhouses came to an end. These changes demonstrate a rather complex reorganization of the cultural landscape. In this paper I will discuss whether changes in burial traditions and resource exploitations also involved a new social organization focusing on the individual household. Does the re-organization of the cultural landscape reflect a social dynamic through time?
Excavations in Turganic settlement, investigated in 1982, 2014-2015. The stratigraphy on the all excavation trench is the same. The lower cultural layer of the Eneolithic (the E-complex) is presented with ceramics, and flint and bone artifacts. Ceramics can distinguish two types of Samarskay culture. The flint artifacts (about 2000 copies): about 60% of the findings are represented with blades and tools made from blades; about 20% are represented with flakes. The blades are very considerably in size – from microflints to unbroken blades of more than 10 cm. The tools made of blades are represented with end-scrapers, chisels, sharp points, arrow heads, and blades with dredging. 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 finds as ceramics (about 2000 fragments of more than 50 vessels), animal bones, wrestlings 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 is similar to the materials of the early Yamnaya culture. Archaeological materials: the E-layer contains mainly the bones of domestic species: cattle and small cattle, dog, horse, and also of elk and beaver; the BA-layer contains predominantly the bones of domestic species and horse; the remains of wilding, including elk, auroch, bear, beaver, and fox, are few in number. The series of 15 radiocarbon data based on animal bones from all the sections of the settlement area, and from different depths was undertaken. The materials of E-complex have been dated approximately by 4900-4400 BC (cal). Above that, some materials have been dated approximately by 4250-3950 BC (cal). This dating corresponds with the well-known dates of the ceramics from Repin Hutor and Kyzyl-Hak I and II settlements, and from some other sites.

The series of radiocarbon dates based on animal bones from the upper cultural layer confirmed previously established data based on the shadings ceramics from Turganic settlement: Кi-15597 4710±80 ВР. In total, the BA-layer could be dated by 3900 – 3400 лет ВС (cal).

The materials have been dated approximately by 4250-3950 BC (cal). Above that, some materials have been dated approximately by 4250-3950 BC (cal). This dating corresponds with the well-known dates of the ceramics from Repin Hutor and Kyzyl-Hak I and II settlements, and from some other sites. From these sites.

The author thanks RFH for support with grant No. 14-01-00127 and Ministry of Education Russian Federation for help with the State Assignment No. 33.1471.2014K.
TH1-19 Abstract 02
Bronze Age foodways in the Carpathian Basin: similarities and differences, continuities and changes

Author - Prisca, Annamaria, University of Pécs, Pécs, Hungary (Presenting author)
Co-author(s) - Bouvy, Yvi, 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’ generally refers to the neglect field of Bronze Age research in the region, and its wide-ranging cultural implications are rarely considered. In our paper we will examine the subsistence economy and foodways of the study area through the review of the available paleoethnobotanical 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.

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

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

The Argaric society was developed during the Early Bronze Age (c.2200–1550 BC) in the South-east of the Iberian Peninsula, and became one of the most importante aristocratic 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 over a small set of ceramics. For the first time in an Argaric context, we have investigated the molecular and isotopic composition of organic residues (by gas chromatography and mass spectrometry) over a wide suite of ceramics (43 pottery sherds) from two of the main Argaric sites: La Bastida (Totana, Spain) and La Almoloya (Puerto, Spain). One of the key results is the detection of invisible substances in just two occasions and over a small set of ceramics.

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

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

Cereals have been a major contributor to human diet in many parts of the planet during the past 10.000 years. They can be consumed in a large variety of ways (gruel, bulgur, flour, bread, etc.), which makes the archaeological recognition of cereal food remains extremely difficult. In the last decade, a larger number of archaeobotonists have shown their concern for the identification of archaeological fragments of cereal grain produced prior to charring. Their identification seems to remain somewhat problematic, and their interpretation is open to discussion. They are often seen as evidence of bulgur production, but how can we exclude that they were not produced during cereal dehusking or threshing, or during flour production? During the last years we developed three independent lines of research that we would like to combine in this presentation. These are of different nature: ethnoarchaeological, experimental and archaeobotanical.

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

Author - Drs. Hondelink, Merit, Archeodienst Noord bv, Groningen, Netherlands (Presenting author)
Keywords: Bio-archaeology, Food and alimentary practices, Roman Limes
Presentation Preference - Oral

The diet of non-Romans living in the border area of the Netherlands, as reconstructed by bioarchaeological research, is The Roman empire has been the subject of numerous archaeological and historical studies over the past decades. In the Netherlands, Roman occupation of the southern provinces has been studied intensively via archaeological research. Forts, villas and viili have been excavated and some have been reconstructed. These layouts speak to the imagination, as well as the ships used for transport. Recently, the Limes has been reconstructed to visualise the Roman border and demarcate the Roman province of Germany Inferior and the lands inhabited by the indigenous tribes.

It used to be thought that the arrival of the Romans brought on a culture shock in the area south of the Limes, imposing an alien lifestyle on the tribes living under Roman rule. However, archaeological and historical research has shown that this was not the case. The indigenous people assimilated and took over some aspects of Roman life whilst at the same time continuing with some of their own traditions. Roman culture mixed with the traditional lifestyle of the peoples of Germany. An important part of culture are food and alimentary practices. It is what you do and do not eat, how we eat, how we prepare food and how we think about food. It is culture bound. It is assumed that in some way, the Roman food habits were passed on where necessary. This has been proven for some sites in the occupied area of Germany Inferior. However, little is known about the food and alimentary practices of the non-Romans living north of the border. We know that both sides of the border traded with each other supplying the other party with men, materials and perhaps produce. But to what extent was the diet of non-Romans living above the Limes border influenced by the neighbouring Romans? This paper tries to answer this question using archaeological, archaeoethnobotanical and archaeochemical data retrieved from archaeological excavations in the area north of the former Limes.

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

Author - Dr. Ten, Jerome, UMR7209, CNRS/MNHN, Paris, France (Presenting author)
Co-author(s) - Dr. Gillette, Sophie, UMR648, Cihan, CNRS, Lyon, France
Co-author(s) - Dr. Gasco, Sebastian, Université de Picardie Jules Verne, Amiens, France
Co-author(s) - Dr. Sénac, Philippe, Université Paris IV-Sorbonne, Paris, France
Keywords: Al-Andalus, archaeobotany, Islamic diet
Presentation Preference - Oral

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

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

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

This combined sum of experiences will be used to make some recommendations for future research on this issue, both in terms of necessary experimental work and the archaeobotanical analysis of these remains.
TH1-19 Abstract 07

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

Author: Prof. Valerie, Soutoarea 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 Aegaean to Central Europe, spanning the Neolithic through to the Iron Age (7th-1st millennia BC). A collaboration between the Aristotle University of Thessaloniki in Greece (author), IPNA-Basel University in Switzerland (Prof. Stefanis Jacome), University of Hohenheim in Germany (Dr. Hans Peter Sikta) and University of Vienna (Dr. Andrea 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 originalgraphic investigations and insights of ancient texts, the project aims to provide a multifaceted and integrated approach of Europe’s cuisine during late prehistory. In presentation we focus on the data and methods that will form the basis of the project and present an overview of the available data, research questions and lines of investigation that will be followed to address them.

TH1-19 Abstract 08

Medieval alimentation habits deduced from archaeological studies of cesspits

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

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

Cesspits fillings are the most commonly studied contexts in late medieval and early modern archaeobotany. In most cases, especially when waterlogged plant remains were retrieved, abundant plant remains were recorded, but the archaeobotanical data sets from cesspits are hampered by taphonomic problems. Oil plants, spices, collected and wild fruits are in most cases much better preserved than cereals and pulses. Nevertheless, despite quite different preservation conditions for different types of plant food these embalmed features of faecal remains and kitchen waste are mostly suitable for comparisons due to a high number of recorded taxa of cultivated and wild edible plants used for human consumption. Rescue excavations conducted by the Institute national de recherches archéologiques preventives (Inrap) in the medieval towns of Sambourg and Toul in eastern France revealed waterlogged and mineralized plant remains in huge quantities. These towns have developed since Roman times and some of the recorded spiced and other cultivated plants are at least introduced since Roman times. These data of recent studies are confronted with archaeological results from late medieval and early modern cesspits coming from the harbor towns of the Hanseatic League and the Hanseatic city of Gotland which developed from the 13th century onwards. During medieval times both towns were part of the Hanseatic League and the medieval and early modern commercial network of the Baltic trade gave access to some imported luxury products like black pepper, cardamom, rice and others. In contrast to these harbor towns with wide-spread commercial contacts the studied towns in eastern France played a more modest role during late medieval and early modern times. The communication aims to compare archaeobotanical data from two different regions without direct commercial contacts to study aspects of the social and economic background of plant food and alimentation and choices made by Man.

TH1-19 Abstract 09

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

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

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

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

TH1-19 Abstract 10

The contribution of pollen analysis to the archaeobotany of cesspits

Author: Dr. Deforce, Koen, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Presenting author)
Co-author(s): Brink Kempke, Otto Dr., Cultural Heritage Agency. P.O. Box 1800, NL-3800 BP Amersfoort, Netherlands
Keywords: cesspits, diet, pollen
Presentation Preference: Oral

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

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

TH1-19 Abstract 11

Animals, Meats, Waste and Garbage in Medieval Visby

Author: MA Malmborg, Gustaf, Uppsala University, Visby, Sweden (Presenting author)
Keywords: Medieval Visby, Social Economic, Zoisarchaeology
Presentation Preference: Oral

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

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

Author - Stewart, Karen, Museum of London Archaeology, London, United Kingdom (Presenting author)

Keywords: Archaeobotany, Postmedieval, Food choices 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 commercially excavated site in the centre of London. Well preserved archaeobotanical remains from this site help to build a picture of London society in the 18th and 19th centuries. Results show that the occupants of the site had access to plants from the Americas and Asia, as well as those grown more locally, though the continued absence of certain plants in the archaeological record was also noted. The use of imported plants for the production of alcohol was also found at the site, presenting evidence of the ‘Gin Craze’ which swept London in the 18th century.

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

Author - Vigil-Escalera Guirado, Alfonso, University of Salamanca, Madrid, Spain (Presenting author)

Co-author(s) - Aceituno Bocanegra, Francisco J., Universidad de Antioquia, Medellín, Colombia

Co-author(s) - García-Collado, Maté I., University of the Basque Country UPV/EHU, Vitoria-Gasteiz, Spain

Keywords: biases, invisible food, millet

Presentation Preference - Oral

An extensive palaeoecological sampling program was carried out at the Early Medieval village of Gózquez (central Spain, AD 525-765). It is one of the most comprehensive collections of botanical remains so far analysed for this kind of geographic and chronological context. From an initial total of 8800 items from 34 positive samples were retrieved. Hulled barley and free-threshing wheats were the dominant species. Hulled barley and weat 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 methods of nitrogen isotopic analyses performed on bone collagen of 40 individuals buried in the cemetery and some sites of the same village revealed a first surprising result: villagers widely consumed C4 plants. Since no such crop was identified in the carpological record, starch analysis of the grinding surfaces of stone milling stones were performed as an alternative proxy. These revealed abundant starch grains of Panicum or Setaria in all the four items analysed in the first round, in addition to wheat, barley and oats.

At this point, we realised of several possible explanations for the invisibility of the production and consumption of millet at Gózquez. Inefficient sampling, uneven preservation of carbonized plant remains, or complete distinct routines in the processing of differing 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 palaeoecological records.

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

Author - Dr. Beat, Julia, Bournemouth University, Poole, United Kingdom (Presenting author)

Co-author(s) - Dr. Mattoy, 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 food items to address due to the fragility of eggshell in acidic soil conditions, the need for rigorous retrieval processes, and the important part of avian-human interactions both today and in the past. However, eggs are one of the more challenging avian food items to address due to the fragility of eggshell in acidic soil conditions, the need for rigorous retrieval processes, and the important part of avian-human interactions both today and in the past. However, eggs are one of the more challenging avian food items to address due to the fragility of eggshell in acidic soil conditions, the need for rigorous retrieval processes, and the important part of avian-human interactions both today and in the past.

Dietary analysis of 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 archaeovian evidence. Such examination allows fuller understanding of past avian-human relationships in the context of diet, economy, society, and (particularly for wild birds) the environmental and seasonal aspects of their relationship. This paper investigates egg use in the past by combining zooarchaeological and scientific analysis of physical eggshell remains from archaeological sites with evidence from documentary sources and material culture. Identification of eggshell via the new technique of ZooMS (Zooarchaeology by Mass Spectrometry) and exploration of developmental stage via SEM (Scanning Electron Microscope) can be used to examinehusbandry 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 tablet), and agricultural guides detailing husbandry and avian information (e.g. Columella’s Res rustica). Using case studies from Roman and Medieval Britain this paper demonstrates how multidisciplinary integration of eggshell analysis with other lines of evidence can offer new insights into avian contributions to diet and food selection. These case studies are then situated within the extended application of this methodology to a wider European dataset (including material from France, Portugal, 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, biostratinomy and taphonomy: Seeking out the pathways to destruction or preservation

Author - O’Meara, Don, Newcastle, United Kingdom (Presenting author)

Keywords: Archaeobotany, Taphonomy

Presentation Preference - Oral

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

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

Author - Jamine, van Noorden, Leiden University, Leiden, The Netherlands (Presenting author)

Keywords: Late Byzantine period, archaeozoology, faunal remains, Euboea, 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, focusing 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 these results to the existing data from isotope and literature studies. Research is to contribute to filling the lacuna of knowledge of the food supply in the Late Byzantine period in Greece and comparing these 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 Thebe in Boeotia, one of the most important centres in this region. Later, from the 13th century, the city become a trading colony and transit port for the Venetians. The excavated material from a rescue excavation in
Interpreting the Archaeological Record

TH1 Interpreting the Archaeological Record

Martin, Copenhagen University, Copenhagen, Denmark

The current city centre is extremely diverse (including glazed and unglazed earthenware, metal, glass, coins) especially within the material culture (i.e. wooden remains, burial relics, amphora for transport). This indicates that Chalcis was an important distribution centre with contacts in Venice and Constantinople. This makes the research interesting not only by creating a dietary image of Byzantine Greece, but also to see whether intercultural changes in diet have taken place between the Late Byzantines and the Venetians. From its prominent geographical location, Chalcis, with its well analysed stratigraphy and vast quantity and quality of faunal material, it offers the unique possibility to fill the absence of knowledge surrounding the food supply of the Byzantine period in Greece.

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

TH1-19 Abstract 17

Analysis of a latrine from 17th century Copenhagen, Denmark

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

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

DNA analysis of the parasite eggs is carried out in order to get to a species determination as well as investigating the zoonotic potential. The archaeological material from the vicinity suggests that the local inhabitants would have been in contact with traders from the Netherlands, based on the architectural, numismatic and ceramic finds. This is corroborated from the find of bucketheat 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

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

The huge amount of broomcorn millet remains in the Middle Bronze Age (MBA) layers of the Lavagnone site (Garda region), are of importance as they are found in stratigraphic continuity with underlying EBA layers. This allows analysing quantitative changes in plant 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 cf. repens, Medicago minima, Cichorium intybus, Onopordum acanthum, Pastinaca sativa, Silene stellata, Verbecom sp.) favour dry and warm habitats. It is in this scenario that broomcorn millet started to be widely cultivated.

The ecological tolerances of broomcorn millet should also be considered in order to explain its adoption in a multiple cropping system. It is a summer crop, sown very late in spring, as it does not withstand frost during germination. It grows well in regions of the terrestrial herbs. The occurrence of many new taxa accounts for a diversified and wider open land. Most of these newly introduced taxa (e.g. Agropyron cf. repens, Medicago minima, Cichorium intybus, Onopordum acanthum, Pastinaca sativa, Silene stellata, Verbecom sp.) favour dry and warm habitats. It is in this scenario that broomcorn millet started to be widely cultivated.

The ecological tolerances of broomcorn millet should also be considered in order to explain its adoption in a multiple cropping system. It is a summer crop, sown very late in spring, as it does not withstand frost during germination. It grows well in regions of the terrestrial herbs. The occurrence of many new taxa accounts for a diversified and wider open land. Most of these newly introduced taxa (e.g. Agropyron cf. repens, Medicago minima, Cichorium intybus, Onopordum acanthum, Pastinaca sativa, Silene stellata, Verbecom sp.) favour dry and warm habitats. It is in this scenario that broomcorn millet started to be widely cultivated.

TH1-19 Abstract 19

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

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

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

Keywords: Diet, Islamic, Zoosarchaeology

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

The main objectives of this study are to understand the local diet, to characterise the exploitation strategies of wildlife resources and to do an environmental characterization of the area during the occupation period. The results will then be integrated in what is already known for other Medieval Islamic contexts in Algarve. For this we will do the zoosarchaeological analyses (classification of remains, abundances, anthropic and other modifications, biome) of the aquatic invertebrate remains. Ultimately, zoosarchaeology 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 Rudapex 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. galloprovincials (mussels), Solen margarita (razor clam), Venus verrucosa (venus) and remains of Pectinidae family (scallop). The level of fragmentation is very heterogeneous across the contexts, from a mix of pre- and post-depositional agents.

TH1-19 Abstract 20

Parasites in archaeological deposits.

How to interpret their presence and how to recognize them

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

Keywords: archaeometry, archaeomicroscopy, parasites, parasitic eggs, faunal remains

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 stabilising area of the fourteenth and fifteenth century in the northeast of France.

TH1-19 Abstract 21

Unraveling the Medieval Islamic diet: preliminary data from the malaco fauna of Tejo do Praio (Portugal)

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

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

Keywords: Diet, Islamic, Zoosarchaeology

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

The main objectives of this study are to understand the local diet, to characterise the exploitation strategies of wildlife resources and to do an environmental characterization of the area during the occupation period. The results will then be integrated in what is already known for other Medieval Islamic contexts in Algarve. For this we will do the zoosarchaeological analyses (classification of remains, abundances, anthropic and other modifications, biome) of the aquatic invertebrate remains. Ultimately, zoosarchaeology 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 Rudapex 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. galloprovincials (mussels), Solen margarita (razor clam), Venus verrucosa (venus) and remains of Pectinidae family (scallop). The level of fragmentation is very heterogeneous across the contexts, from a mix of pre- and post-depositional agents.

TH1-19 Abstract 20

Parasites in archaeological deposits.

How to interpret their presence and how to recognize them

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

Keywords: archaeometry, archaeomicroscopy, parasites, parasitic eggs, faunal remains

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 stabilising area of the fourteenth and fifteenth century in the northeast of France.

TH1-19 Abstract 21

Unraveling the Medieval Islamic diet: preliminary data from the malaco fauna of Tejo do Praio (Portugal)

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

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

Keywords: Diet, Islamic, Zoosarchaeology

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

The main objectives of this study are to understand the local diet, to characterise the exploitation strategies of wildlife resources and to do an environmental characterization of the area during the occupation period. The results will then be integrated in what is already known for other Medieval Islamic contexts in Algarve. For this we will do the zoosarchaeological analyses (classification of remains, abundances, anthropic and other modifications, biome) of the aquatic invertebrate remains. Ultimately, zoosarchaeology 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 Rudapex 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. galloprovincials (mussels), Solen margarita (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.
TH1-20 Abstract 01
Introduction. Regional and chronological development of fishing
Author - Luebke, Harald, Centre of Baltic and Scandinavain Archaeology (ZBSA), Schleswig, Germany (Presenting author)
Co-author(s) - Bergsøe Knud Andreas, University Museum of Bergen, University of Bergen, Bergen, Norway
Co-author(s) - Klooß, Stefanie, Institute of Pre- and Protohistoric Archaeology, Christian-Albrechts-University, Kiel, Germany
Co-author(s) - Koivisto, Satu, Department of Archaeology, University of Helsinki, Helsinki, Finland
Co-author(s) - Pedersen, Lisbeth, Kalundborg, Denmark
Presentation Preference - Regular session

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 utilized for various purposes. Humans' adaptive and innovative ability to conquer new-ecological niches and to respond to environmental stress led to the invention of new fishing technologies and e.g., mass-harvesting facilities and highly organized procurement strategies. Sometimes fisheries are labour-intensive and collective effort may have been required. Hence, fishing technologies may be closely related to the socioeconomic, cultural, and sociopolitical systems in fishing communities, as well as to population dynamics. Cultural constraints, behavioural interactions, and social norms might have regulated fishing and the consumption of aquatic resources. Exploitation technologies might express group identity, and provide insights into contacts and communication between different fishing societies. Still, aquatic resources and procurement technologies are often poorly visible in the archaeological record. Therefore, knowledge about the importance of fish in prehistoric subsistence is often quite uncertain. This session aims to deepen current knowledge within the framework of local, supra-regional, and diachronic development and application of active and passive fishing technologies in the harvesting of aquatic resources as well as other linked activities. Active and passive fishing is insufficient, various forms of indirect evidence are employed. Settlement patterns, site location, fishing technology, and resource specialisation reflect the utilisation of fish as a food source, or as a source of raw materials. Therefore, apart from studies utilising archaeological fishing-related materials, we would also like to encourage researchers contributing studies applying analogous data, from the viewpoint of, e.g., ethnography, anthropology, and ethnohistory to help build the frames of reference and further our understanding about fishing as a phenomenon and its longterm dynamics.

TH1-20 Abstract 02
Discontinuities in fishing practices at the onset of Neolithic: a case study from Starcevo
Author - PhD candidate Živaljević, Ivana, Laboratory for Bioarchaeology, Belgrade, Serbia (Presenting author)
Co-author(s) - Stefanović, Srdja, Laboratory for Bioarchaeology, Belgrade, Serbia
Keywords: Early Neolithic, Fishing, Starcevo
Presentation Preference - Oral

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

TH1-20 Abstract 03
Comfortable fishermen in Mesolithic western Norway
Author - Prof. Bergsøe, Knud Andreas, University of Bergen, Bergen, Norway (Presenting author)
Co-author(s) - Ritchie, Kenneth, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany
Keywords: Fishhooks, Fishing gear, Settlement patterns
Presentation Preference - Oral

In late Mesolithic western Norway fishing stood for a major factor in the subsistence. The large majority of the residential sites are situated close to the shoreline, near good fishing grounds. Line-sinkers of soapstone occur frequently at these sites, and at some of them - where conditions for preservation for faunal materials are favourable - fishhooks of bone are found, and also...
TH1-20 Abstract 04
Written sources as a way of understanding Danish prehistoric eel fishing methods

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

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

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

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

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

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

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

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

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

Author: Luebke, Harald, ZBSA Schloss Gottorf, Schleswig, Schleswig, Germany (Presenting author)
Co-author(s): Klos, Stefanie, Institute of Pre- and Protohistoric Archaeology, Christian-Albrechts-University, Kiel, Germany
Co-author(s): Birczid, Valdis, Institute of Latvian History at the University of Latvia (LV), Riga, Latvia
Keywords: Ancient fishery, Mesolithic, wooden tools
Presentation Preference: Oral

The Stone Age site Sise is situated in the valley of the River Ulava on the Kurzeme Peninsula in western Latvia. Next to the site is the former river mouth, where during the transgressive phases of the Ancylus Lake and Littorina Sea it entered a large bay. In the subsequent regressive phases the bay was transformed into lagoons that subsequently developed into freshwater lakes and peatlands. Archaeological finds recovered since the 1920s demonstrate the importance of this landscape for prehistoric hunter-fisher-gatherer groups.

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

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

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

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

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

Author: Kęstutis, Peseckas, Vilnius university, Faculty of history, Vilnius, Lithuania (Presenting author)
Co-author(s): Pilaitiukas, Oytis, Lithuanian Institute of History, Vilnius, Lithuania
Keywords: tree species, wooden plank
Presentation Preference: Oral

Šventoji Subneolithic - Bronze age (4000-500 cal BC) archaeological complex is well known for the extensive excavations that took place during the second half of the 20th century and the excellent preservation of some perishable organic materials. During the last decade of excavations at Šventoji (2006-2015), new sites located in abandoned Bronze Age (2000–500 cal BC) river channels and containing rich cultural layers with a wide range of artifacts and wooden fishing structures were added to the wetland archaeological complex. Until recently tree species of wooden artefacts found during the excavations at Šventoji were rarely identified, and then using mostly macroscopic evaluation. Fragmental data, in some cases collected using unreliable
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 analysed using microscopy (Krempien CH, Kempper 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, vic, villa 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 12
Fishing as part of the local economy in the Steinhuder Meer –

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

Keywords: economy, ethno-historical study, Fishing

Presentation Preference: Oral

The Steinhuder Meer is a lake of 30 sq, km northeast of Hannover in Northern Germany. Mesolithic artifacts indicate that people made use of the resources of the lake since that time. As it was an economically underdeveloped area at that time, the two bordering states were a matter of constant quarrels in Middle Ages and Early Modern Times. In the end the inhabitants of the village of Steinhude won the conflict. Most of the fish was caught with the help of fish traps, a method which together with the traditional boats, known as Torfkähne, is still used today. To gain the necessary raw material for the nets the fish was bought by the fishermen who were farmers as well, because they could not make their living from fishing alone. The surplus of flax was used for cloth making which was the start of a linen industry lasting to this very day. In addition the boats were used for transporting past across the lake and for cutting young reed as forage or grass from floating meadows. Traditionally the fishing rights were leased to individual fishermen. This changed around 1900 when the whole lake was leased to a single person. He introduced a type of vessel (Angelkahn) which derived from Havel region and new methods like line fishing and the use of a large seine net. At the same time the railway reached the lake and tourists came in. In the beginning, before special boats for visitors were constructed, Torfkähne were also used for carrying day-trippers. They were fond of smoked eel which was not only sold in the village of Steinhude, but later also at the market in Hannover. In fact the consumption of eel was for many people a reason to visit the lake. Because of this economic success only eels were caught and the rest of the catch was dumped back into the lake. This process lasts until today although most of the eels are now imported from other regions. Perhaps this development can to develop patterns for the economic impact of large settlements like the so-called Fürstensitze of the Hallstatt Period, the Oppida of the Latène Period or the Roman military forts. In these places there were not only many people who had to be fed, but there lived also a group of wealthier people who were able to afford special food, like eels or other delicacies. On the other hand the Steinhuder Meer shows that the introduction of new means of production can sometimes be linked to a single event. Apart from these questions the paper will deal with the various methods how the fish was caught.

TH1-20 Abstract 13
Pre-Columbian fish traps as source of livelihood for low income coastal people in Latin America

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

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

Presentation Preference: Oral

Our knowledge of Roman fishing is based on a wide range of written and pictorial as well as archaeological sources. The study of the latter came into academic focus in the past few years (cf. International Workshop “NETS AND FISHING GEAR IN CLASSICAL ANTIQUITY. A FIRST APPROACH”, University of Cadiz 2007). All sources teach us about techniques and fish consumption as well as fish processing to manufacture the famous garum. Ancient authors (cf. Oppian’s Halesia) and some rare inscriptions give us insights in the organisation and socioeconomeic structures behind the Roman fishing industries. Most of these sources originate from the Mediterranean. In contrast, almost nothing is known about freshwater fishing in the north-western provinces. Even though fishing tools as hooks and net needles were regularly found at Roman sites (cf. Wiidisch- Vindobonensis, Biberach/CH, Nethenbach/CH, Kemppelen/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, vic, villa 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.
What is the role of cultural heritage for poverty alleviation in coastal areas of Latin America? Along the coastline of Brazil, small-scale fisheries are a traditional and crucial source of food and livelihood for thousands of people. Brazilian coastal communities efficiently integrate modern small-scale fishing techniques with pre-colonial indigenous knowledge, as a neotraditional mix. In the coastal areas of Maranhao (northern Brazil), this culminates in the use of historic fish traps (locally known as camboas), built by indigenous populations likely before the European Encounter. We will present the results of a multidisciplinary research effort aimed at exploring and documenting the contribution of this coastal cultural heritage to food security and community livelihood in one of the poorest areas of Latin America. The results offer some insights into the role of archaeology and historical ecology for mitigating poverty in coastal areas of Latin America.

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

---

**TH1-21**

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

Friday, 2 September 2016, 09:00-13:00

**Faculty of Philology, Room SF2**

**Author:** Dobrovolskaya, Maria, Institute of Archaeology, Moscow, Russian Federation (Presenting author)

**Co-author(s):** Makarov, Nikolai, Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation

**Co-author(s):** Kurila, Laurynas, Lithuanian Institute of History, Vilnius, Lithuania

**Co-author(s):** Bertasius, Mindaugas, Kaunas University of Technology, Kaunas, Lithuania

**Keywords:** funeral cremation, ideologies of past societies, Medieval Northern and Eastern Europe

**Presentation Preference - Regular session**

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

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

It is thus possible to study the variability of cremation parameters and their spread over large territories, and to assume the ideas and worldviews of the people who practiced this burial rite. Different variants of cremation funeral rites have been distributed in Eastern and Northern Europe. For example, one of the variants of burial which became widespread in Medieval Northern and Eastern Russia is the burial of small amounts of cremated human and animal remains in the surface layers of the ground. The special importance of the East Baltic region, in particular Lithuania, in the context European burial rites is the latest precisely documented cremations. The new body of data obtained from recent years’ excavations and application of new methods in both field and laboratory archaeology seems to promise productive discussion. The session expects presentations discussing new methodological and theoretical approaches to cremation burial, and cremation rites as unveiling the ideologies of past societies.

---

**TH1-21 Abstract 01**

**Cremation graves of the Western Balts in the Late Iron Age. Comparative approach**

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

**Keywords:** Ashenplätze, Collective cremation graves, Prussians, Curonians, Scalvians

**Presentation Preference - Oral**

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

Early medieval sites with funeral cremations in the North-West of Eastern Europe

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

Keywords: early Middle Ages, Eastern Europe, funeral cremations

Presentation Preference - Oral

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

Cremations in Shekshovo: new evidence of the Viking Age burial rituals in Central Russia

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

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

Co-author(s) - Dobrovolskaya, Maria, Institute of Archaeology of RAS, Moscow, Russian Federation

Co-author(s) - Kranikova, Anna, Institute of Archaeology of RAS, Moscow, Russian Federation

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

Presentation Preference - Oral

Cremation is known as a dominating funeral ritual in the Upper Volga in the IX-X-th cc, however present knowledge of cremation practices in this region in the Viking Age is based mainly on the documentation of the burial mounds excavated in the 1960-1980-ies and in the earlier times.

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

Many variant of the find material were distributed site in Eastern Europe during the second half of the 1st millennium AD. These centuries’ burial sites of the Moscove region were unknown until the last years. Systematic studies of these cemeteries have been done over the past 15 years only. All known burials are opened in the Middle and Upper Oka river, from Kolomna to Serpukhov, Moscow region. Rite feature that burned bone fragments placed on the ground surface. Urns were used rarely. The compact deposition of cremated bones suggests that they were put in the any organic (leather? textile? wood?) boxes. There are no pits in these ground cemeteries. That is why these sites were not detected for a long time. Now for seven cemeteries of different ages are known. The earliest one goes from V c. and the most late has been dated to the XII c. These dating based on the grave goods characteristics. Some burials have no any grave goods. The age of these burials have been dated by 14C (charcoal samples). All findings are presented with imported products, which complicate the cultural attribution of those people. For this people the Fun and Finish jewelry and buckles can be present in the burials together. Melted beads, melted objects from the bronze and silver chain mail parts, sygulams 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 Khasan cultural characterising Viking burial goods. 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

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

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

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

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

Keywords: cremation, inter-disciplinary research, Merovingian cemetery

Presentation Preference - Oral

This paper discusses the preliminary results of the anthropological analysis of the human cremated bone excavated at the Broechem cemetery and sheds light on early medieval funeral practices in the Scheldt 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 depositions and one 4-post grave house are to be mentioned. The second group is scattered all over the cemetery and is to be dated in the same period as the inhumation graves in these sections (second half of the 6th till the second half of the 7th century). The funerary structures consist mostly of so-called Brandgrabengräber or Knochelagier. The osteological analysis aims to provide a detailed description of the nature of the deposits, to identify and quantify the human and animal cremated bone, to assess taphonomic effects of thermal alteration and fragmentation, to estimate the minimum number of buried individuals, to assess demographic data (age, sex) and presence of pathological changes, to identify any evidence of pyre technology (used during the cremation process) and presence and type of grave goods. The analyses of archeological and other dendrochronological characteristics observed in the charred fragments is expected to provide additional information on former wood use for fuel. Additionally for the study of the ethnic from Broechem, attention will be paid to possible differences in fuel selection between the different types of cremation graves.

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

Author - Dr. Synyavskiy, Alexander, Municipal budget organization “Kolomna archaeological center”, Kolomna, Russian Federation (Presenting author)

Keywords: cremation, The Great Migration period, Viking Age

Presentation Preference - Oral

Many variants of the funeral rites were distributed site in Eastern Europe during the second half of the 1st millennium AD. These centuries’ burial sites of the Moscove region were unknown until the last years. Systematic studies of these cemeteries have been done over the past 15 years only. All known burials are opened in the Middle and Upper Oka river, from Kolomna to Serpukhov, Moscow region. Rite feature that burned bone fragments placed on the ground surface. Urns were used rarely. The compact deposition of cremated bones suggests that they were put in the any organic (leather? textile? wood?) boxes. There are no pits in these ground cemeteries. That is why these sites were not detected for a long time. Now for seven cemeteries of different ages are known. The earliest one goes from V c. and the most late has been dated to the XII c. These dating based on the grave goods characteristics. Some burials have no any grave goods. The age of these burials have been dated by 14C (charcoal samples). All findings are presented with imported products, which complicate the cultural attribution of those people. For this people the Fun and Finish jewelry and buckles can be present in the burials together. Melted beads, melted objects from the bronze and silver chain mail parts, sygulams 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 Khasan cultural characterising Viking burial goods. 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 detect some traumas.

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

TH1-21 Abstract 06
Folk from “Lodges of the dead” (on the burial sites of the Russian North in first millennium AD)
Author - Kleshchenko, Ekaterina, Institute of Archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)
Keywords: 'Lodges of dead', bioarchaeological approaches, cremations
Presentation Preference - Oral

“Lodges of dead” – is the special type of burial sites which was typical for the Mologo-Shekska interfluve and other parts of the Russian North and central region of the European Russia. This name comes from the special wooden structures (small houses - lodges) with materials of the funeral cremations as well as ash, pieces of carbon, fragments of bronze, iron, glass, bone grave goods. The tradition of this type sites stretches for many centuries, from the first cc. BC to the end of the first millennium AD. These archaeological sites of the Mologo-Shekska interfluve (western part of the Vologda district) were excavated by A.N. Bashenkin [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 remains from "lodge 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 XII, Kurevanikha XVI were used in this research. Materials were examined with the microscope. All cremated fragments were verified by color, weight, number, high temperature cracks and deformations. Clear anatomically fragments were used to determine the sex and age of the individuals, and to detect the presence of animals. All clear anatomical fragments were recorded in archaeological plans.

Analysis allows us 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 bodies 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 the same time together. The report of the cremated remains inside the "lodge of dead" this region were not studied till nowadays.

TH1-21 Abstract 08
Underwater burial sites of the 14th century: Kernave case
Author - Dr. Veliča, Gentilaudis, Vytis 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 13-14 centuries. In the dried stream watercourse about 13 kg of cremated human and animal bones, pottery and metal artefacts from the 14th century were discovered.

Burials in the water have received various scientific interpretations. The report provides the archaeological research data analysis of Kernave burial site and reveals the relation of this object to contemporaneous town. The essential question – whether the burial in water was a long - time tradition or was it only the consequence of important historical events? The analysis of the underwater site was based on the bioarchaeological research. Small ceramic fragments were identified as bone cremation. The ceramic vessels were found with burned bones. The burial in water was not mentioned in the historical, mythological or folklore sources. Cremation graves in water are also unknown in broader chronological and geographical contexts. So, bearing in mind the longevity characteristic to funeral traditions, the water burial rituals (which were practiced comparably briefly) forces us to look for uncommon causes of this phenomenon. Today’s research methodologies do not allow us to state the chronological continuity of the phenomenon under investigation.

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 noticed that when the deceased is buried in this way, any grave personalization opportunity disappears. East Lithuanian region is noted for barrow burials tradition with very conservative funeral customs which existed 1000 years until the 13th century. Barrow was installed and used for a long time as a posthumous dwelling for a certain family. The specific individual burial place had to be important and at least several family generations were familiar with it. Therefore, the cardinal change of these traditions had to be the consequence of sudden and unavoidable events. Perhaps these events were the cause of death of significant group of persons. In this context, the attention should be drawn to the fact that precisely in the second half of 14th century the eastern Lithuania was reached by the largest force of the Teutonic 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 plague could reach Kernave too.
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 (e.g., taphonomic changes and so forth.)

Romanov-Pugachev pond - one of the monuments, which was opened recently in the Zelenograd district of Kalingrad region (East Prussia). Some graves disturbed by robbers, but one urn burial with cremation has been intact. The vessel was filled with heavy clay soil. Recording and sorting out the urn contents took place in the laboratory. Contents urn studied in layers, taking into account the depth of the layer. As a result, it was revealed that the buried 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 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 of single and double (collective) burial;
- The age and sex of the individuals from the burials with weapons;
- Grave goods burned on a pyre and those that have been put into the urn without burning. Further rise of data will contribute to estimate the interaction of local and outside cultural influences and migrations on the funerary traditions of the inhabitants of the region of Sambian peninsula.

1 The study was supported by the RFBR, Nr 16-06-00058.

TH1-21 Abstract 10

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

Author - Belkina, Moscow, Russian Federation (Presenting author)

Co-author(s) - Syrovatko, A.S., Kolomna archeological center, Kolomna, Russian Federation

Keywords: burial ground, cremation, Middle Oka

Presentation Preference - Poster

Multivariate of funeral rites of the Late Roman period - the Early Middle Ages in the central part of European Russia (Moscow region) are not studied in detail. A special place in this variety are the cremation. In particular, the burials differ in the way the localization of the burned bones (burned mound or burial ground). The batches of the burned bone may be scattered and compactly located. We consider all these variations, since they have a specific meaning and formal position in the funeral rites. This report - the description of the unusual case of burial cremation of the first half of the 10th century. It comes out of the ordinary ones by “heavy weight” of all individual burials in the Middle Oka.

Schurovo archaeological site is located on the first terrace of the right bank of the Oka (the middle reaches of the river) near the Kolomna town. There are kurgans and ground graves with cremations on this site territory. Systematic excavations take place since 2001 by Kolomna archeological center expedition (A.S. Syrovatko). According to the dating of the grave goods the site existed from VI till X cc. Ground graves with cremation is more late type of burials and associate with IX-X cc. The batches of the burned bones may be scattered and compactly located. We consider all these variations, since they have a specific meaning and formal position in the funeral rites. The presence of single and double (collective) burial; The age and sex of the individuals from the burials with weapons 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.

The total weight of the bones burial was 10470 g (NB - average weight of a single burial of about 500 g). The grave goods are typical for this site. Most part of the fragments (8675 g.) is indelible. Nevertheless, we could estimate anatomical position of the 8 fragments from different part of skull and postcranial skeleton of the adult human (20-30 year, the sex is unclear). The mass of these fragments is about 32 g. Cremated bones (273 fragments, 1762 g.) of large and small mammals have been identified besides human bones. Thus, this is the extraordinary burial. We offer two versions of interpretations: • The high-status burial; • Rich sacrifice (animal bodies) were burned on the pyre; • Cult events that goes beyond the funerary practices (sacrifice??).

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

The study of Mesolithic settlements is a key issue to understanding the articulation of a social and economical system that lasted for several millennia and its collapse. Analyzing the spatial organization of settlements increases our knowledge on activity areas, subsistence strategies, seasonality of occupations and social organization. One of the most informative aspects is the study of dwelling structures identified in the archaeological record as post holes, stakes, pits, walls, floors, hearths, etc. The interpretation of their functions often leads to heavy assumptions (mobility system, storage, social hierarchy). The passage of these archaeological facts to their interpretations is obviously a crucial phase of our work, we need closer monitoring.

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

TH1-23 Abstract 01
Social organization behind shell-middens: ethnoarchaeological experiences from Tierra del Fuego
Author - Garcia-Piquer, Albert, Autonomous University of Barcelona, Barcelona, Spain
Co-author(s) - Ealevez, Jordi, Autonomous University of Barcelona, Barcelona
Keywords: Ethnoarchaeology, Mesolithic, Shell-middens

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

Since 1988, a Spanish-Argentinean 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. These features have been suggested as indicative of the early Mesolithic way of life as mobile hunter-fishers being present for excavating and explaining similar archaeological sites around the world. For example, Mesolithic Atlantic Europe shell-middens have been described as residential or logistical based on their size and thickness, or on the amount of remains and sometimes considered sedentary settlements based in averaged samples. But similar middens may be the result of different strategies of occupation. We need to develop specific methodology, maximize and adequate techniques of excavation in order to reconstruct the social organization behind the processes that formed each shell-midden.

TH1-23 Abstract 02
Mesolithic dwelling Space in an interdisciplinary perspective
Author - Res. Associate Gyg, Ole, Norwegian Maritime Museum, Oslo, Norway
Keywords: Dwelling, Interdisciplinary, Mesolithic

This paper discusses the authors' development of an empirically based approach for analysis of the Mesolithic use of dwelling space based on theory, concepts and data from mathematics/physics, experimental social psychology, social anthropology as well as archaeology. The underlying assumption is that the space of hunter-gatherer dwellings is organised in accordance with culture-specific patterns so that the general positions of the individuals in a specific culture reflect their age, sex and status. One focus is the merging of theory from several disciplines into one theoretical context. Another is the involved disciplines’ reaction on such a merging.

TH1-23 Abstract 03
Early Mesolithic site space in western Norway
Author - Dr. art. Hare, Arne Johan, Museum of archaeology, University of Stavanger, Stavanger, Norway
Keywords: Dwellings, lithic dispersal patterns, Norwegian Early Mesolithic

It has been hypothesized that western Norwegian Early Mesolithic sites are characterized by a standard lithic tool inventory with a uniform spatial configuration of the lithic debris. Specific lithic dispersal patterns are associated with both dwellings and "open air sites". The dwellings are mainly identified as tent rings of stone cobbles and with associated fireplaces and lithic debris. These features have been suggested as indicative of the early Mesolithic way of life as mobile hunter-fishers being present for a long period. However, Mesolithic mode of life has been debated and the only evidence seems to be the remains of activities performed by a single individual. In this paper, the authors present a new approach for identifying Mesolithic dwelling space based on spatial patterns of lithic debris.

TH1-23 Abstract 04
Little house on the shore: Understanding the dryland structures at Star Carr, UK
Author - Dr. Connelly, Chantal, University of Manchester, Manchester, United Kingdom
Co-author(s) - Birchennan, J., University of Manchester, Manchester, United Kingdom
Co-author(s) - Knight, B., York University, York, United Kingdom
Co-author(s) - Little, A., York University, York, United Kingdom
Co-author(s) - Milner, N., York University, York, United Kingdom
Co-author(s) - Taylor, B., University of Chester, Chester, United Kingdom

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 both of the sites there were at least ten discrete re-occupations in different seasons, whereas in Langthwaite only one (maximum two) long occupation period have been registered.

A shell-midden is thus not necessarily a homogeneous block of sediments and the variability inside can be very significant of the economic and social system that produced it. Experimental ethnoarchaeology is a useful tool, providing guidelines for excavating and explaining similar archaeological sites around the world. For example, Mesolithic Atlantic Europe shell-middens have been described as residential or logistical based on their size and thickness, or on the amount of remains and sometimes considered sedentary settlements based in averaged samples. But similar middens may be the result of different strategies of occupation. We need to develop specific methodology, maximize and adequate techniques of excavation in order to reconstruct the social organization behind the processes that formed each shell-midden.
TH1-23 Abstract 05

Back to Beg-er-Vil: from taphonomy to spatial analysis of a mesolithic dwelling in Atlantic France

Author - Marchand, Gregory, CNRS, Rennes, France (Presenting author)
Keywords: Dwelling, Mesolithic, Spatial Analysis
Presentation Preference - Oral

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

TH1-23 Abstract 06

New insights into open-air Mesolithic settlement in northern Spain.

Recent research at El Alloru

Author - Prof. Arias, Pablo, Universidad de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Cubas, Miriam, Universidad de York, York, United Kingdom
Co-author(s) - Fano, Miguel Angel, Universidad de La Rioja, Logroño, Spain
Co-author(s) - Álvarez-Fernandez, Esteban, Universidad de Salamanca, Salamanca, Spain
Co-author(s) - Aragón, Ana Cristina, Dirección General del Patrimonio Cultural, Lisboa, Portugal
Co-author(s) - Cueto, Maria, Universidad de Cantabria, Santander, Spain
Co-author(s) - Duarte, Carlos, Universidad de Cantabria, Santander, Spain
Co-author(s) - Fernández Sánchez, Patricia, Universidad de Cantabria, Santander, Spain
Co-author(s) - Hernández, Enrique, Universidad de Burgos, Burgos, Spain
Co-author(s) - Jorquera, Jesús, Instituto de Prehistoria de Cantabria, Santander, Spain
Co-author(s) - López-Dóriga, Inés, Wessex Archaeology, Salisbury, United Kingdom
Co-author(s) - Nájar, Sara, Universidad de Cantabria, Santander, Spain
Co-author(s) - Salzmann, Christoph, Philippa-Universidad Marburg, Marburg, Germany
Co-author(s) - Tapia, Jesus, Sociedad de Ciencias Aranzadi, San Sebastián, Spain
Co-author(s) - Teichner, Felix, Philippa-Universidad Marburg, Marburg, Germany
Co-author(s) - Teira, Luis César, Universidad de Cantabria, Santander, Spain
Co-author(s) - Urozcano, Paloma, Universidad Nacional de Educación a Distancia, Madrid, Spain
Co-author(s) - Vallejo, Jorge, Universidad de Cantabria, Santander, Spain

Keywords: Asturias, Dwelling structures, Settlement
Presentation Preference - Oral

The dearth of direct evidence on the settlement areas and particularly on dwelling structures has traditionally been a serious challenge for the understanding of the Mesolithic of northern Iberia. Recent research is contributing to overcome those difficulties. In 2013 we started a systematic survey of open-air settlements in an area with a high density of cave sites, the region of northern Spain coast where the classic “Asturian” places is located. It included geomorphological analysis, magnemetry survey, sedimentology cores and archaeological excavations. Among the most outstanding results, an open-air Asturian site was located near the cave of El Alloru (Balmoral, 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, archaeological, lithic raw materials and lithic technology analysis, is also provided.

TH1-23 Abstract 07

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

Author - Dr. Gutierrez-Zugasti, Igor, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Cuenca-Solana, David, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain
Co-author(s) - Gonzalez-Morales, Manuel, Instituto Internacional de Investigaciones Prehistóricas de Cantabria, Santander, Spain

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

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

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

TH1-23 Abstract 08

Microstratigraphic investigations at the Mesolithic shell midden of El Mazo, Asturias, Spain

Author - Duarte, Carlos, University of Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Irate, Enrique, University of Burgos, Burgos, Spain
Co-author(s) - Urquijo, Paloma, Universidad de Cantabria, Santander, Spain
Co-author(s) - Arias, Pablo, University of Cantabria, Santander, Spain

Keywords: El Mazo, Microstratigraphy, Shell midden
Presentation Preference - Oral

The Mesolithic of the coastal karstic platform of eastern Asturias is characterized by more than one hundred deposits of marine shells and other archaeological material cemented by carbonate in the walls and ceilings of karstic cavities. There are only a handful of shell middens that allowed archaeological excavation. The knowledge about the Asturian shell middens still lacks information about the formation and post-depositional processes that are clearly affecting them and complicating archaeological interpretations on its functionality and accumulation. This is also partially due to the scarcity of geoarchaeological approaches to these deposits.

At El Mazo limestone shelter the discovery of a widely stratified shell midden constitutes a rare chance to answering these questions. From a geoarchaeological point of view, El Mazo is particularly relevant for the existence of several layers rich in marine molluscs embedded in matrices with different sedimentary compositions, some of them only a few centimetre thick.

Structures apparently well preserved were also identified, such as combustion features, also with heterogeneous configurations (e.g. presence/absence of stone structuration), which might be indicating different behaviours and types of occupations through time.

Undisturbed sedimentary block samples were collected to investigate into the microstratigraphy of this shell midden and the structures within the shell layers. The study under the microscope of the thin sections obtained allows to systematically identify sedimentary microfacies and assign them to possible in situ and reworked contexts, including those of fire combustion features.

Ultimately, the identification of sedimentary structures resulting from human activities, that many times leave imprints only microscopically, might lead to the reconstruction of the behaviours behind the accumulation of the shell middens.

Keywords: Asturias, Dwelling structures, Settlement
TH1-23 Abstract 09
Can pits define a settlement?
One example from inland Iberia Mesolithic

Author - Gaspar, Rita, Porto, Portugal (Presenting author)
Co-author(s) - Caramona, Joana, Porto, Portugal
Co-author(s) - Detry, Cléa, UNIAR, Liébana, Portugal
Co-author(s) - Martin Seijo, María, CIBIO-InBio, Porto, Portugal
Co-author(s) - Teress, João, CIBIO-InBio, Porto, Portugal
Presentation Preference - Oral

In the last years new discoveries regarding Early Holocene human occupations have been made in inland Iberia, namely in northeast Portugal. One particular site, Foz do Medal, will bring important contributions to the study of Mesolithic communities due to its well preserved records as well as to its location in the border of Spanish Meseta.

Foz do Medal has more than 60 pits within three Mesolithic phases, from the 8th to the 6th millennia cal. BC. In some Mesolithic phases pits appear associated to other types of structures, such as post holes, hearths and hut floors. Nevertheless pits dominate the settlement area. Its contents were analysed by a multidisciplinary team, revealing 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 biotic and abiotic resources.

TH1-23 Abstract 10
Clues to recognize spatial organization and function of the Mesolithic camps from Polish Lowland

Author - Dr. Osipowicz, Grazegorz, 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 multidiscated studies, which were subjected to three Late Mesolithic camps from the area of central Poland: Sasiczno 4 and Ludowice 6 (eastern and western habitation). The studies included soil, geomorphological and hydrological analysis of the sites area, archaeozoological and taphonomical analysis of the bones, palynology, AMS dating and multithreaded analysis of stone artifacts, including: petrography, technology, reworking and use-wear study of all artefacts. Spatial analysis were carried out using primarily Kernel density and “Ring and Sector” methods, also GIS equipment and software. As a result the data were collected, that allow to recognize the probable original function and spatial organization of the included camps and individual settlement points (residential and economic) discovered in their area. It were observed clear differences here, which were used as a basis for inference about the seasonality, specialization, functional and structural diversity of the analyzed camps and even their possible relationship with only one gender.

TH1-24 Abstract 01
Introduction: studying evidence for weighing through the ages - problems and challenges

Author - Associate Prof. Rahmstorf, Lorentz, University of Copenhagen, Copenhagen S, Denmark (Presenting author)
Co-author(s) - Gralak, Tomasz, University of Wrocław, Wrocław, Poland
Co-author(s) - Dzbyński, Aleksander, University of Zurich, Zurich, Switzerland
Keywords: cognition, metrology, trade
Presentation Preference - Oral

The discipline of ancient metrology is generally considered to be a difficult subject and weighing equipment is often not sufficiently discussed in publications. If the evidence has indeed been recognised at all. One of the aims of this session is to promote such studies and to demonstrate its relevance for many key issues of the human past, among them cognition, trade and economic integration, mathematical conception and socio-economic organisation. The time is past due to disseminate the relevance of weights and measures, especially because the identification of such tools offers a considerable reinterpretation of the cultural context in which they appear.

We will highlight some of the problems and challenges we have to face when studying (potential) weights, scales or weight-regulated artefacts. Issues we will touch upon comprise the relation of weighing to metallurgy, abstraction, standardisation, metrology, trade and traders and even to the ancient perception and description of the world.

TH1-24 Abstract 02
Normative and behavioural aspects in Near Eastern weight systems: a Case study from Ebla (Syria)

Author - Dr. Ialongo, Nicola, Sapienza University of Rome, Roma, Italy (Presenting author)
Co-author(s) - Dr. Vacca, Agnese, Sapienza University of Rome, Roma, Italy
Co-author(s) - Prof. Pavanel, Luca, University IUdM of Milan, Milan, Italy
Keywords: balance weights, Ebla, hoards
Presentation Preference - Oral

TH1-24 Abstract 03
Weights and Weighing from the Bronze Age to the Middle Ages: Perception, Context, Use

Thursday, 1 September 2016, 09:00-13:00
Faculty of Philosophy, Room 201
Author - Rahmstorf, Lorentz, University of Copenhagen, Copenhagen, Denmark (Presenting author)
Co-author(s) - Dzbyński, Aleksander, University of Zurich, Zurich, Switzerland
Co-author(s) - Gralak, Tomasz, University of Wrocław, Wrocław, Poland
Keywords: metrology, trade, weights
Presentation Preference - Workshop

The material remains of past cultures are conceptualisations of their creators. Artefacts associated with the application of weight standards from prehistory to the Middle Ages may be analysed in this way. Certainly, weights and scales facilitated trade and exchange, integrated different geographical spheres and cultures in economic terms and became in this way a medium in defining interpersonal and intergroup communication. Weighing is also closely connected the other kinds of measurements of concrete things as well as the conceptualisation of numbers.

During this session we would like to raise the following topics:

• When emerged the concept of weighing and under which circumstances? How closely was it related to the increasing importance of metallurgy?
• Whether and to what extent weighing units were abstract concepts?
• Why were certain shapes of weights chosen and preferred in certain regions and periods?
• How were various weighing systems constructed and how were they then transformed through time? Can we really define the origin and end of the use of specific weighing systems and units?
• What are the contextual associations of weighing equipment (scales and weights)? What does this tell us about the use of these tools and the social status of the users?
• Influenced weighing systems the perception and description of the world?

We would like to invite all scholars to this workshop who analyse such issues by the study of archaeological remains.
Standard weight systems in ancient Near Eastern polities perform as normative tools, in the hands of state administrations. In their most practical meaning, weight standards serve the purpose of allowing the commensuration between goods and value to be quantified against an objective frame of reference, and noted down in administrative records. Weight standards were issued as "noms", and as such they were often ratified through royal edicts and enforced by public officers. But how far do official standards concur in shaping the practical experience, in particular in economic transactions, and ultimately in producing the materiality we observe in the archaeological record?

Is there any regular pattern we may observe in weighed goods, that we can use to infer normatively-induced economic behaviour? In the attempt to answer such questions, this study is set to empirically address the relation between norm and practice in the formation of the archaeological record, in instances of economic behaviour of Near Eastern Bronze Age states. The study of coherent assemblages of balance weights reveals much about official standards, how widely they were acknowledged within a given territory and how far different official systems reciprocally interconnected. However, from a material perspective, the relation between balance weights and weighed goods remains somewhat obscure. In order to address such a relation, a comparative statistical analysis of two coherent material assemblages will be presented, from the Middle Bronze Age levels at Tell Maridith/Elba (2000-1680 BC). The assemblage of balance weights found in different buildings (palatial, religious, defensive and domestic) throughout the Old Syrian town and 2) the unpublished silver hoard containing 171 pieces (ingots, rings, chains, scrap metal) found beneath a floor of a dwelling located on the south-eastern slopes of the Acropolis.

The hypothesis to be tested is that the distribution of the weight values of the silver ingots, scraps and fragments - which the hoard is composed of - may reveal substantial analogies with that of the balance weights from the same site. The choice to focus on a silver hoard is dictated by the fact that this metal was, at the time, the main medium of exchange and standard of value, and thus the distribution of silver objects is most likely to reflect normatively-induced behaviour.

The two contexts will be analyzed through quantal analysis and frequency distribution, and the results will be compared. The former method stands as a standard in Ancient Eastern and Mediterranean metrology in the study of balance weights, whereas the latter was refined by one of the Authors in previous researches on Bronze Age Europe, where the lack of balance weights urges to focus, instead, on weighed metal.

In interpreting our results, we acknowledge that norm and practice are the two sides of a same coin, in that they stand as complementary aspects of real-world economies; therefore, understanding the interplay requires first to tackle each aspect through the appropriate methodology.

TH1-24 Abstract 03
Weight - highly abstract measure
Author - Dr. Siusara, Karatyzna, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: Central Europe, metal production, weight
Prentation Preference - Oral

Nowadays in most countries of the world we have one coherent metric system in which every phenomenon can be described using 7 base units. But even in not very remote past every unihth its own scope of references and one quantity could be measured using different units depending on physical state, purpose and other properties. Among other measures invented or negotiated the weight is the most abstract one. It is hard to point any natural equivalent that can be used as a comparative amount as e.g. feet, elbow length or the number of eyes, heads or fingers. Even if these units/numbers differs between people there is something like the ideal model - every man has 2 eyes, 1 head and 5 fingers in each extremity - except for some rare exceptions.

Or it is possible to establish one benchmark, in which the majority of people fit into with their feet or elbow length. Other quantities were usually counted using proper container, in which the product was consumed or stored.

The earliest weight units seem to be connected solely with metal production. This particular activity - starting from ore acquisition, extraction, alloy preparing, up till the end-product - requires very specific knowledge and ability to abstract thinking taking into account that at every stage of this process the material has completely different properties. So in this meaning the beginning of the Bronze Age can be also perceived as a moment of emergence the new, abstract unit - the weight.

In the attempt to establish one coherent value for the objects we can compare among metal objects, these objects has also comparable sizes and shapes. Wherefore we should consider whether this comparable weight was exactly the characteristic that the producer had meant towards his clients 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 among metal objects, not necessarily metal, weight equivalent. In the Bronze Age Central Europe, the evidence for the existence of comparable weight units are scarce and disputable, though we can trace them in the Mediterranean World.

The main aim of the paper is to reconsider whether, and to what extent, the idea of weight in Central Europe is connected with metal production itself. Or whether it is the product of highly organized communities (with well-developed and centralised markets), then adopted, without understanding its essence, by Central-European societies of the Bronze Age.

TH24 Abstract 04
Identifying weights in later Bronze Age Western Europe
Author - Associate Prof. Rahmorf, Lorez, University of Copenhagen, Copenhagen S, Denmark (Presenting author)
Keywords: Southern 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. F. Price for Central Europe, by Andrea Cardarelli and others for Italy, and Raquel Viola 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.

TH24 Abstract 05
The social use of metrology in the western Mediterranean Iron Age
Author - Dr. Gorgues, Alexis, University of Bordeaux Montaigne, Pessac Cedex, France
Co-author(s) - Poigt, Thibaud, UMR 5608 TRACES, Université Toulouse Jean-Jaurès/Université Bordeaux Montaigne, Toulouse-Bordeaux, France (Presenting author)
Co-author(s) - Comte, Florent, Free Lance Arcaeoologist, Bordeaux, France
Keywords: Iberian Peninsula, Institutions, Weighing
Prentation Preference - Oral

In this paper, we will like to present the first steps of an investigation aimed at discussing the nature of metrology in a specific context of the Mediterranean Iron Age, the Iberian one. Metrology is basically an institution, whose materiality in the Iron Age is mainly linked with weighing. It can take different aspects. When based on experience, on practice and on spontaneous and mutual agreement, we can speak of a practical institution. When enforced by law, and guaranteed through the activity of magistrates, it is a formal institution that may have, much more than the first one, a secondary impact on the material record: its existence will promote normative behaviours, as the fabrication of standardized pottery vessels.

The use of weights and scales during the Iberian Iron Age is well known and has generated an extensive bibliography. These works rely mostly in two assumptions. The first one is that weighing has to be understood on the widest frame of the trading practices connecting at this time the Iberians with others peoples of the Mediterranean area, namely the Greeks and the Punics. The second one is that the weights themselves are characteristics of a metrology having a wide range of application, including – and often predominantly- the proto-monetary sphere. In other word, the adoption of such technology would have meant the deliberate development of an exotic, formal institution, whose imitation aimed at inserting the native networks in the wider Mediterranean ones. This convergence of the Iberian institutions of trade with those of the “Classical” Mediterranean is considered as part of a widest evolutionary process, which conclusion would be the constitution of Iberian “Early States”.

We will first look for the evidence linked to weighing. Such evidence is overwhelmingly concentrated in the Valencian Country. We will show that here, from the end of the 5th cent onward, metrology is quite coherent from one place to another.

However, through the contextual analysis of the weighing instruments, we will argue that weighing is not prominently linked with long distance trade, but rather with one’s patrimony management, and was a highly performative activity.

In a second time, we will examine the evidence for normative behaviours, such technology, and the use of weights. 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 accuracy 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 strictly economic sphere.
TH1-24 Abstract 06

**Metal ingots as a medium of exchange in the Bronze Age and the Iron Age**

**Author:** Ph. Doral, Tomasz, Wrocław University, Wrocław, Poland (Presenting author)

**Keywords:** medium of exchange, metal ingots, trade

**Presentation Preference:** Oral

Metal ingots constituted a long-lasting phenomenon that occurred from the beginning of the Bronze Age to the late Middle Ages. They appeared at the earliest in the Siretia culture in Central Europe. Specimens made of bronze are rib-shaped, while gold ones were made of spiral wire of bronze. In the era of the Umelčov complex, longitudinal ingots of bronze and tin were found. Sometimes they had legacies and constructions which facilitated their breaking. They were often found in contexts associated with metallurgy. In the Hallstatt period, objects of this type made from iron appeared. In the La Tène period, ingots of gold, silver or bronze, often broken, have been found together with chopped coins. Analogous finds date from the Roman period, the Migration period and the Middle Ages. From that time, spirally wound ingots and coils of wire are also known. Silver ingots were also a medium of exchange in medieval Lithuania. It seems the reason for such a long use of ingots is their unique usability. They served as a source of raw material, yet remained bullion money. Their form facilitated their breaking up in 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, Benedeguz, Institut für Archäologien, Universität Innsbruck, Stans, Austria (Presenting author)

**Keywords:** Byzantine, glass weight

**Presentation Preference:** Oral

Byzantine glass weights are essential tools of a regulated and controlled coin circulation. To understand the financial management and ultimately the Byzantine tax system of the 6th and 7th century AD they are of great use.

They are made of translucent glass of different colour. Dominant are pale yellow and green colours, but even pieces made of dark blue and red or opaque brown glass occur. On the front side they are stamped sometimes with the bust of a dignitary.

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 in order to achieve reliable data. The typology of the glass weights is based on the inscriptions, various monograms and figural elements. The aim of the project is to establish a typological and chronological framework of glass weights from the period of the 6th and 7th century AD.

The main problems in the research of the glass weights occur in the understanding of the whole system and the chronology of the different weight types, which is based on their prosopographic identification.

TH1-24 Abstract 08

**Multifaceted Head of Neck Ornaments “Perm Type”**

**Author:** Archaeologist, Khan, Nikolay, Vatka-ska Archaeological Expedition Ltd., Moscow, Russian Federation (Presenting author)

**Keywords:** EAA2018, Managing the Archaeological Heritage

**Presentation Preference:** Oral

The neck silver jewelry of the Viking Age in a large number found in hoards in the Kama River basin, had multifaceted clasp, which was a truncated pyramid. The usual method of archaeological search for analogies, is comparative benchmarking, let still detect only similar things. In fact, many-sided fastener rings “Permian” type is half the geometric figures tetrahedron with truncated corners, which found in Hungarian antiquities originating in the territory of Volga Bulgaria by Alexander Spitsyn. It is an object against a faster ring and a size two times greater than it.

Therefore the search for the source of a head, which said Tere Arne even have continued in Iran and the African side. Finding head of the Hungarian antiquities 9-10 centuries suggests that the rings of the Persian such as appeared in the area between the Vykita and Kama in the ancient homeland Udmurt-Finn-Permian population as cultural synthesis (cultural genes). But they began to fall out in hoards with the Arab coins first on Gotland, and then Southern Sweden and Denmark and is only the latest in Vykita 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 or (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 mask in the center of the Volga (the capital of Volga Bulgaria), were made exactly in Bolt. The most important problem, which is still open, is the origin of these objects and their use. One of the most important questions have emerged: who were these Roman weights’ users? Who owned weighing artifacts in ancient Aquileia? There were certainly different users of these weights, depending on their function and their context of use. Both the iconographic, literary and epigraphic sources give only few and meagre answers to these issues. Nevertheless, the weights themselves can provide more accurate hints about their uses. It is possible, for instance, to distinguish official, personal and private ones, used in public contexts, from private ponders, used inside small shops.

Speculations about the identity of the weights’ users may be suggested for some of them, thanks to the different data gathered from stratigraphic-archaeological and morphologic studies. For example, the official weights found in the proximity of the fluvial harbor of Aquileia were surely employed by magistrates sent by the central authority or by officials in charge of the measures’ surveillance. It is possible also to make some assumptions about private weights. The recent investigations in the domus located in the "ex Cossae property" in Aquileia, carried out by the Cultural Heritage Department of the University of Padua, have been an important source of information. The several stone and metallic Roman weights found there might probably be used in the commercial area of the domus, overlooking a street. The founding of these artifacts, one of them with the user’s name inscribed on its surface and possibly related to a domestic context, rises 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 function related to the weighing instruments employed in his property or was he an external tenant?

The attempt to retrace the identity of the Roman weights’ users could mean to find out the role fulfilled by them inside the ancient society of Aquileia: were they magistrates sent by the authority or private citizens? Hence, Roman weights may provide important valuable insights into the typologies of the measuring control system carried out in the city during the Roman period.
TH1-24 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 finding of these measuring instruments on the Pendia’s Hillfort provides an opportunity for some remarks about the weights and measures issue during the production of several prehistoric tools.

TH1-24 Abstract 12
Scales and Weights in Roman Trade: The Case of the Wreck Found in Valle Pega (Comacchio, Italy)

Author - Dr. Corti, Carla, University of Verona, Campogalliano, Italy (Presenting author)
Keywords: Roman trade, scales and weights, weighing procedures
Presentation Preference - Poster

In 1981 in the delta of the Po river, in Valle Ponti near Comacchio, was found one the wreck of a Roman ship with its cargo. The ship was engaged in small scale coastal shipping, but it was able also to transport by river. The shipwreck occurred around 12 BC along the north-western Adriatic coast, between two branches of the ancient Po.

The ship’s cargo excavated by archaeologists includes a big variety of merchandise: lead ingots, some with the stamp of Agrippa, amphorae and ceramics of various type and provenience, lamps, wooden beams, fourths of meat and various small objects, including several little lead temples.

A turn-over steelyard for retail trade and a big stone weight are also found in the cargo. They were part of the ship’s equipment. The turn-over steelyard has two capacities and a stamp with the mention of one personage, probably the mensor who built the instrument in accordance to similar finds. The stone weight, a centussis (100 librae), was used instead for wholesale trade. This weight has an inscription too, which mentions in this case the magistrate navis, the shipmaster, as recently proposed.

The finding of these measuring instruments on the Valle Ponti’s wreck provides an opportunity for some remarks about the weights and measures issue during the production of several prehistoric tools.

TH1-25 Abstract 01
How do we understand animal deposits from the Roman Iron Age in the wetlands in Denmark?

Author - PhD student Parnk, 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 lifestyle of the Iron Age. Most importantly, we must focus on the deposits and their context, not just consider them as zoological objects but also acknowledge the animal deposits as archeological objects with substantial information about society, people and beliefs.

During the last eight years, a large number of animal finds, both sacred and profane, have been excavated from wetlands in northern Zealand. Especially the ongoing excavations at the site called Søpetersmosen 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, BAU, 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 animal. 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/folklore 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 flax. Unfortunately this quite spectacular find were forgotten about and the report never written up. It’s only been referred to in some texts. We have now been able to recollect most of the material from the excavation that was spread out at different museum storages and we have studied the documentation. We have also dated some the human skulls and some of the animal’s bones and performed osteological analysis of the human skulls. Last year we got the chance to return to the place for a small scale research excavation to see how the finds had been preserved and trying to find out how big the actual site was. We found another human being and two horse skulls together with worked wood. The site appears to be quite big, and there is more the 35 meters between the findings of horse skull and human bones and we were not able to find the boundaries of the site. The ritual practices spreads out for a about 1000 years from 300 AD until 1300 AD, which is quite remarkable since it means well into the Swedish middle ages and Christian period… It’s interesting that both the humans and the animals have been exposed to similar types of violence on this site, and this might be one of the clues in how to interpret the mysterious bog bodies. Lake Bokaren is placed near double parish boundaries, between Rašbo and Stadby parishes. This can be interpreted as if this was a place where various localities got together around sacrifice. It’s also challenging to try and put the place in perspective in connection to folklore and oral traditions in the neighborhood. For instance many holy springs are known in the area.

TH1-25 Abstract 03
Place-lore concerning bog bodies and a bog body concerning place-lore
Author - Kama, Pine, University of Tartu, Tartu, Estonia (Presenting author)
Presentation Preference - Oral

...Under the swamp sods and when chopping down shrubs, many human bones came out from Lawiinoo [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 Rabivere bog body is reflected in place-lore. How information in place-lore is comparable with archaeological data and how this folklore should be received by archaeologists, will be discussed.

TH1-25 Abstract 04
Sacrifice and necropolitics
Author - Associate Prof. Christina, Fredengren, Stockholm, Sweden (Presenting author)
Keywords: Bog bodies, Necropolitics, Sacrifice
Presentation Preference - Oral

This paper will analyse mechanisms of inclusion and exclusion in Late Bronze Age and Iron Age Scandinavia (with case studies mainly from Sweden) manifest 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 raises a number of questions about Necropolitics and the control of the boundary between life and death and the effects of such control on societies, but also reflect on Zoe-politics as a historical phenomena (cf. Agamben 1998, Mbembe 2003, Braidotti 2013).
TH1-26 Abstract 01

Taking a closer look – causewayed enclosures through the lens of a large scale use-wear analysis

Author - Bye-Jensen, Peter, University of Southampton, Hayling Island, United Kingdom (Presenting author)

Keywords: Neolithic Britain, life biographies, depositions, use-wear, Neolithic, causewayed enclosures

Presentation Preference - Oral

This paper presents a closer look at the phenomenon of monumentality in the early Neolithic, at a micro-scale. The methodological approach is use-wear analysis of flint assemblages from selected contexts of a number of well excavated early Neolithic causewayed enclosures in southern Britain and southern Scandinavia. The UK sites include: Etton (Cambridgeshire) and Staines (Surrey), with reference also being made to preliminary analyses of assemblages from Hambleton Hill (Dorset) and Windmill Hill (Wiltshire); for southern Scandinavia, Sarup (Denmark). Results from the use-wear analysis offer a way of characterising activities at these sites that has not been attempted before in this way. In particular, use-wear analysis has been able to reveal some of the once-populated 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 methods in use-wear analysis, notably the use of high-end digital microscope technology in combination with a conventional microscope.

TH1-26 Abstract 02

Grinding Tools and Circular Enclosures - Ceremonial Behaviour or Common Refuse Management?

Author - Řídký, Jaroslav, Prague, Czech Republic (Presenting author)

Co-author(s) - Burgert, Pavel, Prague, Czech Republic

Co-author(s) - Končelová, Marketa, Prague, Czech Republic

Co-author(s) - Šumberová, Radka, Prague, Czech Republic

Keywords: Circular enclosures, Grinding tools, Neolithic

Presentation Preference - Oral

The presentation will introduce assemblages of stone grinding tools from the late Neolithic sites (4900 – 4500 cal. BC) in the Czech Republic that were collected in the vicinity of circular enclosures (rondels) the function of which is assumed to be socio-ritual. The assemblages consist mostly of fragments of tools from ditch infillings of the rondels, or from other pits in their vicinity.

We would like to present assemblages from several long-term excavations where the origin of raw source, the manufacturing process, the stage of preservation, and the location of the artefacts in relation to the rondel or other features are known. The following issues related to the socio-ritual features and other surrounding artefacts will be discussed: Is there any evidence that there is a direct relation between the grinding tools and the socio-ritual structure, such as ritual grinding activities during various ceremonies, or do they represent just a common refuse management in the settlement? Why were some of the grinding tools intentionally destroyed and others not?

TH1-26 Abstract 03

The ritual use of flint

Author - Prof. Larsson, Lars, Department of Archaeology and Ancient History, Skivarps, Sweden (Presenting author)

Keywords: fire, flint axes, Southern Scandinavia

Presentation Preference - Oral

In Southern Scandinavia, as in other areas, flint had a special position as a raw material for making a variety of tools. Flint was not only an important element of daily activities, however; it also became a catalyst of ritual. Flint became a very important element in marking the relationship between people and their conceptions of a different world populated by deities and dead ancestors. In this relationship flint axes played a very special role. The final stage of axes was mainly determined by shape and cultural connections. Deliberate deposition of axes in Southern Scandinavia chiefly occurs in a large number in wetland but also at and in megalithic graves. The transformation of flint tools could also involve changing the material through heating. The use of heat differs depending on tool types. A small number of sites have a large amount of material from deliberate heating, while the majority of other sites, such as megalithic graves, causewayed enclosures and palisades have a smaller number of objects partly altered by fire, primary axes. These depositions are also combined with waste from the manufacturing of axes, combining “birth” and “death.”

TH1-26 Abstract 04

From the living to the dead. Lithic artefact deposits in TRB burials in Jutland

Author - Czendrowska, 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.

TH1-26 Abstract 05

The biography of megalithic art at Millin Bay, Northern Ireland

Author - Dr. Robin, Guillaume, University of Edinburgh, Edinburgh, United Kingdom (Presenting author)

Co-author(s) - Dr. 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 adorns the walls of their chambers, passages and sometimes their external features. While most of that art was primarily created to be seen within the fixed setting of the monuments, excavations and studies in Iberia, France and Ireland have shown that a surprising percentage of this art was hidden in inaccessible parts of the architecture, or was erased from the walls, and that many decorated stones were broken and reworked before being re-employed as the structural components of new monuments. This raises at least two important questions: what was the earliest history of the decorated stones before they were placed inside the monuments? And, what was the role, if any, of such ‘un-displayed’ art in their final monumental contexts?
An interesting case study is the Neolithic site of Millin Bay in Northern Ireland, dated c. 3600-3300 BC. The site was excavated in the early 1930s, revealing an unusual long oval house 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 and superimposition, suggesting that the decorated stones had a complex biography before subsequent use in the burial structure of the tomb. What happened to these stones before they were eventually deposited underground and used as architectural components in the monument?

This paper will present the results of new recording and analysis of the decorated stones from Millin Bay. Using photographic techniques and 3D structure-from-motion photogrammetry, we examine technical signatures in the making of the art as well as overlapping art indicating sequences of art production, together with evidence of intentional breakage and other alterations of the stones. This examination allows us to infer the multiple stages and ‘chains of practices’ involved in the production, use and reuse of the Millin Bay stones as ritual artefacts.

Here we approach megalithic art not as a spatially and temporally fixed assemblage of monumental 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 burials.

This paper will consider Millin Bay in its broader context, with reference to wider evidence of reworked and displaced megalithic art in Ireland and Europe, and will discuss the reuse of megalithic art as representing a specialised form of prehistoric monumental construction.

---

TH1-26 Abstract 08

Useful, beautiful or ritual?
The life biography of grave goods from prehistoric burial sites

Author - 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 is considered to mean that, in ritual contexts and in the traditional settlements, grave goods were designed to be used, and, in fact, had a life of their own before that. The longest chain of events in an object’s life identified so far belongs to the adornments made of Spondylus shell that underwent long-distance trade, manufacture, short-distance trade, wear, repair or transformation (or both), wear, and deposition. Another object with a medium life biography is the stone ax/adze/chisel, which could include medium-distance trade, manufacture, use, repair, use and final deposition. On the other hand, there certainly seem to be objects with a very short biography, namely those fabricated especially for the event of the burial. One example of this type seems to be illustrated by clay vessels or figurines that are poorly manufactured, indicating that their use might have been deemed from the start to be very short-termed. The presentation will review the data, with particular examples, mostly from the Lower Danube area but not exclusively, across a span of time covering the Neolithic and the Copper Age periods. I will also try to discuss the possible underlying reasons behind particular choices made by the prehistoric communities regarding the grave goods they deposited to accompany the deceased.

---

TH1-26 Abstract 09

Function and meaning of stones from the grave of the Globular Amphora Culture in Wilczynce (Poland)

Author - MA (Mg) Kieneder-Gubala, Katarzyna, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland (Presenting author)
Co-author(s) - Boruc, Tomasz, Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw, Poland
Keywords: grave, neolithic, stones
Presentation Preference - Oral

Stones were used by prehistoric societies in everyday activities, such as preparing of food, production of other tools made of stones, flints, bones or manufacturing of paints. They also served as a weapon, symbol of prestige and were an important material for dwellings, graves and other constructions of ritual meaning.

During the neolithic Globular Amphora Culture in Poland, the role of stone as a building material for grave construction was significant. In this time numerous objects covered with the stone were present, as well as with a grave goods are known. The Wilczynce site is located in southern part of Poland, in the Sandomierz Upland. The site is well known from earlier palaeoecological, archaeobotanical (maize) investigation, but it concerns also traces of neolithic occupation, connected with Globular Amphora Culture and Corded Ware Culture. There were few graves of this culture, where especially one is unique. It contained three human skulls probably originally situated on the stone or sand soil platform on the perimeter of grave pit. In the vicinity there were also...
other fragments of stones, probably primary being the part of these platforms or some kind of coffers (?) and grave goods in form of many stone tools, as well as animal bones and pottery. In the upper layer there was the skeleton of auriculars. Some of the stones have traces of primary use as grinding, polishing or hammer stones, but there are stones without any traces of use.

This paper concerns on stone artefacts from the Globular Amphorae Culture grave from Wilczycy and the possibilities of interpretation of their primary function as well as traces of its intentional ‘ritual use’ and/or ‘use in rituals’, on the base of the analysis of their spread in the grave, as well as macro- and microscopic features.

**THI-26 Abstract 10**

The role of chipped stone artefacts in the Late Neolithic burial practice at Alsónyék (Hungary)

Author: - Saijlegs, Kata, Eötvös Loránd University, Budapest, Hungary (Presenting author)

Presentation Preference - Oral

The Late Neolithic Alsónyék-Bgszak site has enormous extension, which reflects in large amount of stone tools (nearly 8000 piece 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 structured construction of the settlement and a lot of burials; these factors which can reacon the intensive intracutural connections of the Southeast-Transdanubian group of the Late Neolithic Lengyel culture. This hypothesis is not reflected from the settlement’s chipped stone tools, in contrast to the stone tools from burials These shows the raw material manipulation’s role inside the site. Based on these, we find the everyday’s ingredient tools (e. g.: blade, end-scraper on blade and end-scraper on flake) form local and regional raw materials. The long-distance raw materials made import tools from burial from the ritual spheres’s artefacts.

**THI-26 Abstract 11**

Ornament biographies in amber and antler from the late Neolithic in north-western Norway

Author: - PhD Henriksen, Marete, Norwegian University of Science and Technology, Trondheim, Norway (Presenting author)

Keywords: - depositions, 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. 2500-1700 BC). The pendants are of different shapes and sizes. Of particular interest are the crescent-shaped pendants that originally formed part of larger composite ornaments. These ornaments are also found in antler in the same area. This group of ornaments stand out from the other pendants of amber in terms of shape, but also by having been created and used as composite ornaments from the outset. Whether manufactured locally or imported as finished products, the amber itself had to be imported, suggesting these ornaments were highly valued items, used for expressing both social status and identity.

Belonging to a rich and varied group of depositions from the late Neolithic and early Bronze Age in Norway, the crescent-shaped ornaments have been interpreted as votive offerings. However, this hypothesis does not necessarily provide the best tool for understanding the ornaments and their deposition. In the present study of the ornaments in both amber and antler, a biographical approach is applied, focusing on the relations tied to the objects during their life-course. Against this backdrop, an alternative view of the ornaments, their role in society and the final deposition is presented.

**THI-26 Abstract 12**

A biographical analysis of Mesolithic hoarding in South Scandinavia

Author: - PhD student Jensen, Mathias P.B., Aarhus University, Højbjerg, Denmark (Presenting author)

Keywords: - hoarding, Mesolithic, ritual

Presentation Preference - Oral

Hoarding has often been characterised as a ritualised post-Mesolithic phenomenon, but when similar Mesolithic deposits are identified they are often considered ‘unique events’ and as profane caches of raw material. These Mesolithic hoards, which are often carefully arranged or bundled, contain a wide range of objects, from blades, cores and debitage, to axes, beads and unusually large or unique objects. Preliminary results from this study indicate that some of the objects appear to have been produced immediately prior to deposition, whilst others appear to be well-used, and even burnt or broken. All too often hoards are just considered as an isolated event of deposition, instead of the final stage in a chain of practices that led to the act of deposition of particular objects. Without understanding the pre-depositional life history of the objects in these deposits we severely limit our interpretation of the deposits themselves, the possible pre-depositional ritualised practices that culminated in these hoards and why specific objects were deposited in this manner.

This paper seeks to address the following questions: Are there any large-scale patterns or are they all idiosyncratic and isolated events? Do these deposits represent profane caches, ritualised hoards, neither or a mix? What, if any, relationship is there between the pre-depositional life history of the objects and the mode of deposition? By understanding the biography of these objects and practices we may further our understanding of both Mesolithic ritualised practices as well as the longue durée of hoarding practices in Southern Scandinavia.

**THI-26 Abstract 13**

Ritual Objects as Offering at the Eneolithic Shrine

Author: - Kolasińska-Nasztew, Irena, Archaeological Museum of Macedonia, Skopje, Macedonia (Presenting author)

Keywords: - ritual objects, shrine, traces

Presentation Preference - Poster

At Eastern part of Macedonia, near Kocani few years ago the archaeologists discovered an Eneolithic shrine St. Atanas) which is nearby the Eneolithic site-village. Both are of the same period, 4th millennium B.C.

The shrine is positioned on a small hill and it communicates visually with the settlement. It was used by the inhabitants from this settlement and probably from another nearby. Throughout the excavations there where found various ceramic dishes, zoomorphic and anthropomorphic figurines, altars (sacrificial items), tools made of stones and bones, as well as many animal bones. Most of them were gifts probably donated by the inhabitants honouring their festivities and beliefs through various rituals.

Majority of the material was discovered in fragments, which leads to the conclusion that the items were being crushed in ritual ceremonies.

It is interesting that around these spaces, no remains of wattle-and-daub were found or traces of supporting poles from the buildings construction. The evidence that there aren’t any mud walls confirms that the site is a shrine, not a village.

**THI-26 Abstract 14**

Amber Disc from Daktariške 5 Neolithic Site:

Archeology, Use-Wear, Infrared and Raman Spectroscopy

Author: - Prof. dr. Butrimas, Adomas, Vilnius Academy of Arts, Vilnius, Lithuania (Presenting author)

Co-author(s) - Rimikas, Tomas, Klaipeda University, Institute of Baltic region history and archaeology, Klaipeda, Lithuania

Co-author(s) - Siah, Ovidas, Klaipeda University, Institute of Baltic region history and archaeology, Klaipeda, Lithuania

Co-author(s) - Ulozaitė, Regina, Lithuania National Museum, Vilnius, Lithuania

Co-author(s) - Matulionienė, Ieva, Center for Physical Sciences and Technology of State science institute, Vilnius, Lithuania

Keywords: - Amber, Daktariške 5, Late Neolithic

Presentation Preference - Poster

Traditions of amber collecting, production and distribution in the Eastern Baltic – at least in Lithuania, Latvia and territories later inhabited also by Baltic tribes – mainly, Prussians, reach back as far as the very beginnings of Early Neolithic and has an uninterrupted history of 6400 years.

The large Stone Age amber collection are known from Baltic Sea coast settlement complex in Sventoji and Curonian peninsula (Juodkrantė, Nida). From the area of big lakes, mainly Biržulis Basin the largest collection of amber artefacts are collected in Daktariške 5 Neolithic settlement located in the wetland area.

The Daktariške 5 disc is 3.6 cm in diameter and has a line-shaped cross-section with a small hole in the centre; it has a fine polished surface and is made from good-quality yellowish amber. One side of artefact is divided in four unequal parts by a triple cross made of slight indentations. Along the edges one, two and four small triangles are formed in single and double broken lines of indentations. The other side of this disc is also ornamented: along its edges eight differently sized small triangles are formed by slight thin lines rather than indentations. This disc, due to the very good preservation to bear special coded information unlike any other artefact found in Lithuania or the rest Eastern Europe. It appears that the remains of dark resin can still be seen in the same of these indentations.

By this reason special traceological, infrared and Raman spectroscopy investigation were carried out by the scientists of Vilnus Academy of Arts, Klaipeda University, Lithuanian National Museum and Center for Physical Sciences and Technology of State science institute.

Traceological analysis was conducted on amber disc from the Daktariške 5 Neolithic site. During investigations, use-wear and manufacturing traces were detected on the artefact. Analysis showed that during production of the amber disc two different kind
of tools could have been used. Visible ornaments on the obverse and backside of the artefact differs not only in the geometrical pattern, but also differences are observed in the manufacturing of the ornaments, which shows that ornaments could have been made using different types of tools, i.e. fist and/or metal implantation. Also, use-wear analysis showed that above mentioned ornaments were filled with organic pigment, which granted a multicolored brightness for the amber disc.

FTIR spectral analysis of dark substance from a pits as well as light red remnants from two scratches of ornamentation was carried out. The material possibility applied for decoration was identified to be a mixture of coniferous tree resin and probably some gum, beeswax and fat, while the red traces – aluminum silicate, red ochre and beeswax. The origin of the brown yellow spot on the surface of the artifact was analyzed using both FTIR and micro Raman spectroscopy. The presence of coniferus resin and wax was identified. This investigation has proved FTIR and micro FT-Raman spectroscopy could be particularly suitable technique for non-destructive analysis of such significant archaeological objects.

There are many ways how to approach the study of history – archaeological evidences in excavation sites, dating methods, pollen analysis as well as stratigraphy of geological layers, DNA sequencing techniques for tracing migration routes, admixture analysis etc., to capture in a frame of reference physical evidences of early humans and their past. By studying physical evidence, we see close links to psychological, social and behavioral traits, as well as development of societies, evolutionary perspectives of human mind and material culture. Harder to approach are the development of linguistic capacities, cultural activities as dance and religious beliefs – cosmology and symbolism, primarily-color symbolism through prehistory. Stone Age cemetery Zvejnieki (8.-6. BCE) is closely associated with the usage of iron and processed minerals – like red ochre in burial grounds. As well as evidence for white circle structures, that point to ritualistic symbolism. Thus, the physical evidence here reflects on mental phenomena linked to early mesolithic and neolithic nomadic tribes. The archaeological site Zvejnieki was excavated in 1960, and physical evidence of the colors that were used is no longer available. However, it is still possible to study indirectly the question about the mental and physical capacities involved, in order to recreate a span in time, where such activities as coloring a deceased family member was a valuable task to do.

In the study, the first questions to answer were weather there are naturally occurring ochre site in near proximity from burial grounds and in such case what are the material properties of ochre color and purity of the tone. Further research was directed to find out if modification of natural ochre could take place and what could be the range of colors possible to obtain from local material. At the same time information about similar symbolic behavior in other archaeological sites were studied. During the research the ochre source minerals were found near Stone Age cemetery Zvejnieki. The laboratory analysis for characterization of the material included granulometry evaluation, color spectrum, mineral treatment in various temperatures to alter the color and different natural binders were tested. In order to compare the color variation defined by impurities in the material, iron rich minerals were collected from different parts of Latvia.

It should be noted that considerable amount of ochre source material can be found in less than a 500 m distance near Zvejnieki archaeological site, but the colors are yellowish or brown (gothite). Thus, the material was not directly suitable for the purpose of red burial. However, the experiments conducted confirm that it was relatively easy to alter color, if necessary, by treating material in temperature not exceeding heat of ordinary campfire to gain a consistent red color (hematite).

The archaeological site Zvejnieki was excavated in 1960, and physical evidence of the colors that were used is no longer available. However, it is still possible to study indirectly the question about the mental and physical capacities involved, in order to recreate a span in time, where such activities as coloring a deceased family member was a valuable task to do.

In the study, the first questions to answer were weather there are naturally occurring ochre site in near proximity from burial grounds and in such case what are the material properties of ochre color and purity of the tone. Further research was directed to find out if modification of natural ochre could take place and what could be the range of colors possible to obtain from local material. At the same time information about similar symbolic behavior in other archaeological sites were studied. During the research the ochre source minerals were found near Stone Age cemetery Zvejnieki. The laboratory analysis for characterization of the material included granulometry evaluation, color spectrum, mineral treatment in various temperatures to alter the color and different natural binders were tested. In order to compare the color variation defined by impurities in the material, iron rich minerals were collected from different parts of Latvia.

It should be noted that considerable amount of ochre source material can be found in less than a 500 m distance near Zvejnieki archaeological site, but the colors are yellowish or brown (gothite). Thus, the material was not directly suitable for the purpose of red burial. However, the experiments conducted confirm that it was relatively easy to alter color, if necessary, by treating material in temperature not exceeding heat of ordinary campfire to gain a consistent red color (hematite).

Overall, it can be conluded that it is necessary to carry out appropriate documentation in burial sites where the use of colors are present, for example, the chemical composition analysis. It can help to provide a valuable insight into such fine aspects of prehistory culture as symbolism.

TH1-27 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 paper and ostracra, 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 reclassified 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, Roebroek-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 reevaluating 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 beyond.
TH1-27 Abstract 02
Are Merovingian brooches inalienable personal possessions?
Author: M.-A. Sorg, Marion, Albert-Ludwigs-Universität Freiburg / Institut für Archäologische Wissenschaften, Freiburg im Breisgau, Germany (Presenting author)
Keywords: Inalienable personal possessions, Merovingian brooches, Wear marks
Presentation Preference - Oral

There is a long tradition among Central European archaeologists dealing with the Early Middle Ages to see especially Merovingian bow brooches as inalienable personal possessions of the women buried with them. Although critique on this concept increased over the last decades and alternative models for interpretation have been put forward – like brooches being symbols of an identity rather than inalienable personal possessions – no empirical study on that question has been conducted.

The intention of my research was to investigate if we can tell from the brooches themselves whether they were inalienable personal possessions of the deceased or not. Can the theory that brooches were received at a certain age, were worn the whole life-time and after death were left behind – or something similar – be proven? If this was really the case, there should be a clear correlation between the age at death of a woman and the degree of detectable on the brooches in her grave. By developing a scheme for rating the degree of wear I’ve been able to analyse a large group of Merovingian brooches of several cemeteries in southern Germany in regards to their possible correlation to the age of the bearers and their distribution patterns within the age-groups.

In addition to this I designed theoretical models on how brooches could have made their way into the graves. These models were then compared with the results of my empirical investigation on wear marks and the age of the bearers. Only models consistent with the empirical data were considered plausible and were examined in more detail.

The results indicate that Merovingian brooches were neither inalienable personal possessions, as traditional research saw them, nor symbols of an age-related role as some scholars suggested as an alternative explanation. My conclusions rather suggest that they were personal possessions which the women privileged to wear them were able to replace if they wanted, in compliance with certain rules.

TH1-27 Abstract 03
Jewels between genders: the shifting values of bodily adornment in England AD 350-700
Author: Dr. Martin, Toby, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Dress and identity, Early Medieval, Gender
Presentation Preference - Oral

Skilfully crafted dress accessories such as brooches and buckles were highly valued between the fourth and seventh centuries AD in Europe, and it is this value that to some extent explains their frequent occurrence in graves. While their value has traditionally been considered in terms of ‘wealth’, this term has proven to carry with it connotations that are incongruous when applied to economies based more upon gifts than markets. In fact, our understanding of why these objects were valued is relatively underdeveloped. We might imagine that decorative and substantial personal ornaments were highly valued for a number of interrelated reasons including the materials from which they were made, the skills invested in them, the known individuals through whom the items had been exchanged, and the repeated use of these items on a daily basis in close association with their wearers’ bodies. This paper concentrates on that final category and contends that a large part of the value of these items came from their implementation in the construction of elite and gendered identities. This usage and these values, however, were highly dynamic.

In late Roman Britain exceptionally large and decorative brooches were closely associated with high status men, but by the later fifth century this had become an exclusively feminine practice. Thereafter, highly ostentatious feminine jewellery declined in the late sixth century, when a new type of gold and gemet jewellery predominantly associated with men replaced it. Thanks to recent advances in chronological research, an horizon of particularly richly ornamented male burials has emerged dating the latter part of the seventh century, which may well represent a final swing of the pendulum before furnishing burial ceased entirely. This flip-flop of emphasis between the bodily adornment of men and women in graves through these centuries can tell us much not only about how these objects were valued, but also about the dynamic meanings and values of the bodies of men and women through late Roman Britain to early Anglo-Saxon England. This paper explores these relationships in comparison with other regions in Europe including Western Frankia, southern Scandinavia and the Eastern Baltic.

TH1-27 Abstract 04
How much is that necklace in the coffin? Grave wealth and grave robbery in early medieval Europe
Author: Dr. Klevnäs, Alison, Stockholm University, Stockholm, Sweden (Presenting author)
Keywords: Artefacts, Burial, Early medieval

Presentation Preference - Oral

Grave robbery – a practice of reopening recent burials and taking objects from them – was widespread across early medieval Europe, peaking in the seventh century. Afflicted graves have been recorded in hundreds of cemeteries from eastern Austria to southern England. Their disorder and depletion contrast markedly with the carefully laid out and often lavishly furnished burial displays of the period. Many explanations have been put forward for the reopening practice, but common interpretations are that high-value artefacts or high-value reusable materials were being recovered from graves. This paper looks in detail at how objects in particular were taken from graves, using results from recent research (vogengraberaus.html) it shows that a limited range of artefact types were taken, but that the selection was not based on raw materials or use value.

Many apparently highly valuable objects were deliberately left behind. What lies behind the selection? It will be suggested that the life trajectories which could end in graves differed significantly between artefact types, especially in the degree and nature of objects’ connectedness with their owners, leading to different capacities for separation from the bodies with which they were eventually buried. An argument will therefore be made for low fungibility between many fifth- to seventh-century grave-good types: different forms of possession did not necessarily bear equivalent or interchangeable forms of value. Considerable contextivity needs adding to our understanding of artefact worth in this period – in particular its emergence from interactions of human and object life courses.

TH1-27 Abstract 05
‘Cheap’ bone things, games and travel – on the value of gaming-pieces in an early medieval grave
Author: Zintl, Stephanie, Bayerisches Landesamt für Denkmalpflege, Thierhaupten, Germany (Presenting author)
Presentation Preference - Oral

A grave from Merovingian times, recently found by chance in Leipheim (southern Germany), revealed some small finds that give us a glimpse on the possible dichotomy between the material value of a thing and the ‘real’ value perceived by onlookers at that time. It is a single grave of a man dating roughly to the late 6th or early 7th centuries AD. Buried with weapons, a silver buckle, a glass beaker, a bridle and most prominently a horse, the man’s grave furnishings range well above average for that time and region; yet, the only outstanding finds are fourteen gaming-pieces and a die. Accessories for board games are extremely rare in the – otherwise often so richly furnished – graves of the 6th and 7th centuries in continental Europe. Also, the gaming-pieces in Leipheim belong to a type not known in southern Germany so far, with the closest parallel pieces found in the exceptionally richly furnished burial mound in Taplow, Buckinghamshire, England. While the grave’s furnishings in Leipheim are poor in comparison to Taplow, they still allude to the same lifestyle – which is, in short and clichéd: horse-riding warriors drinking and playing board games (or maybe rather: high-ranking men entertaining guests with drinks and games). Both the context gaming pieces are usually found in, i.e. very richly furnished graves of men, and their general rarity seem to indicate board games were restricted to a rather exclusive echelon of society. At the same time, their material value can be estimated as quite low, as both the raw materials and the skills to produce gaming-pieces – even the nicely turned Leipheim and Taplow ones – were easily available. Thus, gaming-pieces highlight how value might often not be so much in the things themselves but rather in how and by whom they were used. They raise questions of where, how and from whom both the gaming accessories and, more importantly, familiarity with the concept of board games were acquired, and also whether their rarity in graves mirrors their restricted use in the living society, or only representational needs that only were relevant for some funerals. The presentation aims to explore these and also some more thoughts on where the idea of board games might have come from, and why gaming-pieces were so rarely put into graves.

TH1-27 Abstract 06
“Amulets” in Anglo-Saxon graves
Author: Dr. Hills, Catherine, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: Amulets, Anglo-Saxon, Burial
Presentation Preference - Oral

Anglo-Saxon women’s graves of 5th-7th century sometimes include items which have been described and discussed as “amulets”, by Audrey Meanley (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 pottery such as crystal, chalk or animal teeth. Some elements of necklaces such as pierced Roman or Iron Age coins can also be seen in this context. Bags containing one or more of these items have been shown by Felder (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
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-Blackfoot bundle-holders. Among the contact-era Blackfoot, flexible concepts of the value of different material objects enabled individual bundle-holders to respond creatively when presented with historical, environmental, and social contingencies — and this fluidity is mirrored in ceremonial bundle materials. This study seeks to illuminate the relationships between bundle contents and their distribution in various bundle types as indicators of socially-prescribed and maintained traditions. As such, we hypothesise that rules prescribing a communal value to specific bundle contents were more or less flexible depending on the level of social significance attributed to the ceremonies connected to each bundle under the assumption that the greater the overall social significance of a bundle’s associated ceremonial practice, the more constrained bundle-holders were in the development or maintenance of particular contents. In contrast, bundle-holders in possession of bundles associated more closely with personal practice were able to embellish the contents of those bundles under less-prescribed social constraints.

**TH1-27 Abstract 10**

**My worthless precious.**

**Troubles with fluctuating value of Ancient Greek vases**

**Author:** MA Miśiński, Wawrzyńcze, Jagiellonian University in Krakow, Kraków, Poland (Presenting author)

**Keywords:** Ancient Greece, Greek painted pottery

**Presentation Preference:** Oral

Estimating the value of an artifact could prove to be a difficult endeavor even if items come from societies with abundance of coinage systems like ancient Greece. This is true specially for manufactured goods, and specially for Greek painted pottery. The peculiar combination of different stages of consumption of the object, added trade value, and the low cost of raw materials, all this factors are adding up to constantly refine scholarly debate which now runs for over thirty years. Depending on their calculation archaeologists estimate value of a standard piece of Greek painted ware from being almost completely worthless instead of metal vessels to being a prestigious item and luxurious commodity, to present views of just two extreme ends of the discourse. Furthermore, given that the 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 suggests coins as a raw material invested to ship’s ballast, a package for other goods, to the one which make pottery production a serious contributor to Greek trade.

In my paper I will present theories and estimations of value of the Greek vases for all the stages of consumption, straight from the kiln up to the present day, where they rest in museums exhibition. Given 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 message conveyed in the pot. Greek painted pottery consists of enormous cluster of scenes, ranging in hundreds of thousands which are used for studies of the ancient society. The value of the item is often pivotal as it represents the social class for which these objects were made and by which they were consumed and it allows to connect certain ideology with particular set of scenes.

**TH1-27 Abstract 11**

**Materializing worth and value in archaeological beads**

**Author:** Dr. Miller, Holly, University of Nottingham, Nottingham, United Kingdom (Presenting author)

**Co-authors:** Dr. Sayal, Emma, Trinity University, Edinma, 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 artifacts that are still under-studied and under-theorized in this way, such as beads. Understanding the sociocultural-economic significance of beads is obscured by their general classification, through typological assessments, as “ornamentation”. This implies outward-looking, visually driven social practice with decorative purpose, limiting interpretation of value and worth to societies and individuals. Beads, like any aspect of material 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 artifacts highlighted are thought to have been relatively mundane objects, manufactured on readily available materials and were not particularly visually arresting, yet their value and
significance can be interpreted from evidence of extreme curation, intense wear, modification and repurposing over the longue durée; newer approaches, primarily, or even solely, on the typology of these items; their size, shape and a relative weighting of the ‘exotica’ or economic value of material would miss this information. Beads can be vessels of meaning, not only vessels conveying meaning and, as material objects, beads are both cultural products and cultural producers, because of the ways in which they may have circulated in the community, driving interaction and sustaining community ties beyond visual signifying.

THI-27 Abstract 12
More luxury for common people than we thought before: Asian Items in medieval and later Europe
Author - Dr. Jeutke, Garson H., University Bremen, Bremen, Germany (Presenting author)
Keywords: different knowledge and social environments, globalisation and global interacting, 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 adduced 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 role of finds continues to rise. That’s why our conception from a perception of the eastern continent in the west changes.

Medieval users of such like items possessed a potential knowledge, in that case about a distant continent. Thereby it makes no difference if this knowledge was reality or wishful thinking. Often this knowledge concentrated in lordly circles. Nevertheless many of these objects connected with a daily nutrition. The property and frequently use of respective objects in the medieval and later civil society was able to break through the controlling of the knowledge.

Another question weighs the aspects of a globalisation. The existing contacts of the Trans-Eurasian exchanges until the discovery of the maritime route from Europe to India often were selective. Just a few of contacts stretched steadily over the time. Most of them were unilateral, rarely bilateral. One has to question how comprehensive been these contacts inside the Trans-Eurasian exchanges? Which regions had an amount? How tall was a mutual influencing? A higher measure of a mutual interacting is certifiable. However the notion of a globalisation seems not quite appropriate for this period of history.

THI-27 Abstract 13
Striking Objects: Comparing the metal used for Roman copper-alloy coinage and domestic artefacts
Author - Dr. Petar, 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 iron and glass that are often stamped with a date, place, and value. This work aims to contribute to the broader debate on the creation of economic and social value, as well as discuss the changing prevalence of recycling and debase ment.

THI-27 Abstract 14
Moulding meanings. Late Bronze Age valuables through the organisation of metalworking
Author - PhD student Sörman, Anna, Stockholm University, Stockholm, Sweden (Presenting author)

Abstract 14
Keywords: Craft organisation, Late Bronze Age, Prestige goods
Presentation Preference - Oral

Metalwork from the Late Bronze Age of southern Scandinavia includes a wide range of high-quality prestige goods for personal display, ritual and gift giving. The production of these highly valued bronzes is generally understood as centred by communities 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 craftsmanship linked to ritual and exclusive settings in aristocratic milieus. This reflects a common notion where exclusive objects are assumed to gain their value in exclusive settings and through exclusive skills. However, tracing the production contexts of prestige goods in the archaeological record shows that the manufacturing of these valuables was staged in many different ways, none of which seem to reflect exclusive and exotic workshops sites. Looking closer at the organisation of production of valuable craft objects shows that crafting events were staged in many different arenas. In this paper I will discuss how the organisation of metalworking can illuminate the creation of power and value of prestigious possessions of Late Bronze Age Scandinavia beyond the assumption of exclusive workshops for exclusive values. I will discuss how (1) the context and staging of production, (2) the intended bearer of the object, and (3) the citation to other objects all worked as important ingredients in the act of producing powerful possessions.

THI-27 Abstract 15
Fragility and Frivolity: the perceived value of 15th-18th century glass in the Eastern Adriatic
Author - Garwood, Samantha, The University of Sheffield, Sheffield, United Kingdom (Presenting author)
Keywords: Artefact, Textile, Value
Presentation Preference - Oral

Despite the fact that there was a broad selection of intrinsically valuable goods available to the wealthy during the Renaissance, a changing relationship with art in the household meant that objects of glass or ceramic were increasingly prized for their high level of craftsmanship, and were sought alongside gold or silver. For Venetian glass in particular, the skill of the city’s glassmakers and the purity of the raw materials they used meant that the value of the glassware they produced was much higher than the comparatively inexpensive cost of silica and soda ash with which the glass was manufactured. At the same time, however, the lower monetary cost of glassware meant that members of lower social circles might also fill their homes with objects of glass.

Unlike more durable forms of material culture circulated at the time, part of the allure of glass was its fragility and ephemeral nature. Of course, this means that these objects rarely reach us today as much more than small rim fragments, and their value in their original context is not always readily apparent. This paper will explore these ideas of value and worth through late-15th to early-18th century glass excavated along the eastern Adriatic coast, looking at Venetian-style glass’s rise in popularity up until its decline in public favour, and will also consider the newfound value which modern archaeologists place on these artefacts.

THI-27 Abstract 16
More than a pleasing form of real estate: what is a valuable textile and how do we identify it?
Author - Dr. Harris, Susanna, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Artefact, Textile, Value
Presentation Preference - Oral

Until recently textiles in archaeology were studied predominantly in terms of the technology of production and the social identity of clothing. Lately scholars have recognised the expense of textiles in terms of labour and resources, which addresses the question of value largely through an economic perspective. We may ask more broadly: why were textiles valued, what for, by whom, and were some textiles valued more highly than others? This raises deeper theoretical concerns in understanding textiles as a specific form of valued material culture. Such theoretical concerns need to be addressed in archaeological methodologies of artefact analysis. In this paper I suggest that there are five principle ways archaeologists can recognise the value of textiles through the material record; through materials with affordances, in terms of expense and exclusivity, as artefact biographies, as items with conspicuous, sensory appeal and in terms of fungibility. By addressing value, rather than wealth or prestige, we open up questions as to how textiles were valued across social matrices, according to changing ambitions during the life course and through the biography of the textile. Textile value will be explored through archaeological evidence in Mediterranean Europe from 1000-500 BC.
The patterns of domestic pottery consumption progressively changed over the Middle Ages in the Basque Country. Although some productions present since the 7th Century remained beyond the 15th Century, the ceramic record was completely transformed both quantitatively and qualitatively up to the point that the in the ceramic record of the 750s 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 impetus of new products, generating a progressive latent transvaluation in the ceramic record. Thus, the new also constantly directed at new ceramic products with greater sensorial capacity. The introduction of glazed, painted pottery to the tables of the aristocracy set a new sensory aesthetic that ended up transforming the local productive horizon. An interpretative model would emerge from these considerations that explain the progressive changes to the Basque ceramic record over the Middle Ages as a chained process. First new products were imported that changed consumption patterns and then technological innovation processes were initiated that resulted in their taking root on a regional scale.

When it comes to understanding the reasons that justify this process of transvaluation of the ceramic record, we will explore the potential of the communicative value of pottery in its social context of use as a key explanatory factor. For this purpose, we will evaluate the role of pottery in the non-verbal processes of communication and its suitability in the social construct strategies of inequality. Lastly, we will evaluate up to what point the diachronic process that is produced between the capacity of social action of pottery and the adaptability of the regional production system to the new pottery types enables us to explain the nature of the medieval ceramic register in the Basque Country.

---

**TH1-27 Abstract 18**

**Valuable pots made with cheap clay.**

**A biographical approach of the pottery from Sultana-Malu Rosu**

**Author** - Opirs, Vasile, Bucharest Municipality Museum, Bucharest, Romania (Presenting author)

**Co-author(s)** - Ignat, Theodore, Bucharest Municipality Museum, Bucharest, Romania

**Keywords:** biographical, pottery

**Presentation Preference – Oral**

The Eneolithic site of Sultana-Malu Rosu (Romania) is well known in the overall framework of the Gumelnia-Kodjadermen-Karanovo VI cultural complex (ca. 4500–3800 BC) due to the large amount of good quality pottery, among which some of the vessels are unique in terms of shape and decoration. These characteristics are the ones that assign value and special meaning for vessels according to both old and new interpretations. However, most of the pottery from this site is represented by common vessels and other thousands of shards. Also, the site formation has its own identity with the final contexts of the pottery varying from crushed shards used as temper (grog) to whole vessels assembled in burnt houses or used in mortuary practices.

The aim of this paper is to examine certain stages of the biography of various types of pottery concerning their value both for individuals and the community. Our inferences will be mainly based on the analysis of pottery related to the archaeological record. The close inspection of pottery will include provenance studies based on architectural and technical indicators, identifying manufacturing technologies, morphological and typological classification, wear-use analysis, and fragmentation patterns. This approach can establish certain pathways and changes in the vessels’ life, addressing various interpretations of the value and meaning of the objects at every stage of their existence.

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.

---

**TH1-27 Abstract 19**

**The transvaluation of pottery manufactories in the Basque Country along the Middle Ages**

**Author** - Dr. Escobar-Ruiz, Bergo, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)

**Co-author(s)** - Azkue, Agustín, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

**Co-author(s)** - Bilbao, Jose Luis, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

**Keywords:** biographical, pottery

**Presentation Preference – Oral**

The patterns of domestic pottery consumption progressively changed over the Middle Ages in the Basque Country. Although some productions present since the 7th Century remained beyond the 15th Century, the ceramic record was completely transformed both quantitatively and qualitatively up to the point that the in the ceramic record of the 750s 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 impetus of new products, generating a progressive latent transvaluation in the ceramic record. Thus, the new also constantly directed at new ceramic products with greater sensorial capacity. The introduction of glazed, painted pottery to the tables of the aristocracy set a new sensory aesthetic that ended up transforming the local productive horizon. An interpretative model would emerge from these considerations that explain the progressive changes to the Basque ceramic record over the Middle Ages as a chained process. First new products were imported that changed consumption patterns and then technological innovation processes were initiated that resulted in their taking root on a regional scale.

When it comes to understanding the reasons that justify this process of transvaluation of the ceramic record, we will explore the potential of the communicative value of pottery in its social context of use as a key explanatory factor. For this purpose, we will evaluate the role of pottery in the non-verbal processes of communication and its suitability in the social construct strategies of inequality. Lastly, we will evaluate up to what point the diachronic process that is produced between the capacity of social action of pottery and the adaptability of the regional production system to the new pottery types enables us to explain the nature of the medieval ceramic register in the Basque Country.

---

**TH1-27 Abstract 20**

**Interpreting Clay Objects in Neolithic West Asia: Reconsidering “tokens” as early accounting tools**

**Author** - Dr. Barron-Sheall, Lucy, Bilateral Exchange University, Zonguldak, Turkey (Presenting author)

**Co-author(s)** - Lazar, Catalin, National History Museum of Romania, Bucharest, Romania

**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 settlements is the appearance of small, geometric-shaped clay objects, or "tokens" as they are more commonly known as. Clay objects occur in various shapes including spheres, discs and cones, measuring c.150–350cm. Initially appearing at a small number of sites in Anatolia, Upper Mesopotamia, the Zagros and the Levant from the start of the Neolithic period, by the Late Neolithic, clay objects are evidenced across the region, often found in hundreds when present at a site. Until recently, clay objects have been overlooked upon excavation, frequently ignored, or dismissed as children’s toys, naturally occurring lumps of clay or mere doodles. More recently Schmandt-Besserat (1992, 1996) has interpreted clay objects as mnemonic “tokens”, the precursors of cuneiform writing yet their crude 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 chain of 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 (Bonnart-Besserat 1992, 1996), clay objects were multi-functional tools, fulfilling a variety of uses within and across Neolithic settlements.

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 inestimably 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.
Interpreting the Archaeological Record

Fluid Fungibles: The Politics of Value in Archaeology of the Early Medieval Volga Trade

Author: Dr. Bringley, Imla, University of Oxford, Oxford, United Kingdom (Presenting author)

Keywords: Middle Ages, Trade, Value in Archaeology

This paper will address diverse “regimes of value” which were brought together by the booming medieval trade along the Volga River during the 9th-10th centuries CE. The paper will focus on how value was attributed to different goods and objects in various cultural contexts, and how fungibility of goods was fluid among different trading communities. The latter included the nomads of the Khazar Empire, the 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.

Beads, Bells & Baubles: The indigenous Caribbean (re)valuation of Spanish trade goods (c. 1492-1550)

Author: Keetman, Floris, Leiden University, Leiden, Netherlands (Presenting author)

Keywords: Caribbean, early colonial encounters, value systems

This paper juxtaposes archaeological and ethnohistorical sources to explore the early colonial indigenous Caribbean use and valuation of European-introduced goods acquired through systems of barter and gift-giving. Historical accounts written by European 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 facilitated 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, and examine 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 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.

RELIgIOUS LANDSCAPES IN THE NORTH ATLANTIC

Saturday, 3 September 2016, 14:00-18:30

Author: Arneborg, Jette, National Museum of Denmark, Copenhagen, Denmark (Presenting author)

Keywords: Early churches, Ecclesiastical landscape, North Atlantic

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.

The bishop’s grave in St. Alban Church in Odense, Denmark

Author: PhD Hansen, Jesper, Odense City Museums, Odense, Denmark (Presenting author)

Keywords: 11th century bishop, Odense, Old bishop - new church

When King Canute was killed in 1086 in the church of St Alban’s in Odense it “...was at that time the bishop’s church...” (“...tunc temporis sedes et episcopatus...”). This reference by an unknown author in a commemorative text of King Canute the Holy indicates that St Albans’ church functioned as a bishop’s cathedral until 1095, when the king’s body and St Albans’ relics were transferred 75 metres to the newly built St Canute’s church. In the fall of 2015 Odense City Museums excavated a hitherto unknown bishop’s grave in St Alban’s, supporting the designation of St. Albans’s as a cathedral in 11th century. At the same time as the parish system was taking shape in Christian Europe – in the 10th and 11th centuries AD – Christianity was spreading among the colonists of newly settled lands in the North Atlantic. A well known characteristic of the ecclesiastical landscape of the North Atlantic islands is the high number of small churches associated with individual farms. The majority of these did not acquire parochial functions and most were closed down in the course of the Middle Ages. In their heyday, in the 11th and 12th centuries, they were however a very conspicuous aspect of the religious landscape of the North Atlantic. The study of these small churches has progressed in recent years – with comprehensive mapping and identification of such sites and several excavations – but many questions remain. A major issue is how different this pattern was from the Scandinavian and British homelands – or if it was different at all. Other questions relate to architectural influences, the use of space, location and settlement context, but also broader patterns and themes, like continuity from pre-Christian practices, medieval community organisation and ecclesiastical hierarchies, pastoral care in regions of dispersed settlements, medieval religiosity and its long-term development.

Taking its cue from the relatively well documented small-church landscapes of the North Atlantic islands – Greenland, Iceland and the Faroes as well as the Western and Northern Isles of Scotland – this session also aims to discuss also the religious landscapes of Scandinavia, Britain and Ireland and welcomes papers addressing comparable cases and questions in other parts of medieval Christendom.
The Isle of Man is a small island of just 580 square kilometres, yet it boasts the remains of about 200 medieval chapels (in Manx Gaelic, ‘keeills’). In the 1930s Carl Marstrander, the leading Celtic scholar of his day, visited the island to study its many Celtic cultural and linguistic facets. Marstrander was intrigued by the widespread distribution of early medieval burial grounds and chapels, which predate the establishment of a parish system on the island during the 12th century. He proposed and published a highly-influential thesis that the distribution of these chapels was associated with a pre-existing land division system which functioned throughout the island. Several theories have since been advanced which have suggested alternative explanations for the distribution of these chapels, and have been based, for instance, on concepts of peripheral or central location. It is worth taking stock of these, and of Marstrander’s work, in the light of recent discoveries and new dating evidence for some chapel sites, all of which were known at the time of earlier surveys. Together, the development of GIS and the resulting ability to investigate and characterise historic landscapes, offer an excellent opportunity to study the location and distribution of these chapels, particularly in relation to routes through the landscape. As a result, it is becoming possible to propose some new ideas about their location and about the nature of the medieval religious landscape of the Isle of Man.

---

TH1-28 Abstract 03

A landscape of belief: Orkney’s medieval churches

Author - Dr. Gibbon, Sarah Jane, University of the Highlands and Islands, Kirkwall, United Kingdom (Presenting author)

Keywords: church, landscape, Orkney

Presentation Preference - Oral

Over two hundred churches were founded in Orkney in the eleventh and twelfth centuries. This paper will explore the various functions of these churches by considering them in their landscape contexts as a means of overcoming the lack of contemporary written sources relating to them.

The churches can be grouped according to three different landscape settings: proprietary churches located in close proximity to central places within settlement units (townships); isolated churches located some distance from known settlements; and churches that were originally associated with settlement but that were 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.

---

TH1-28 Abstract 04

Chapels, Church sites and Settlement in Medieval Faroe Islands

Author - Arne, Sigmund Vilhelm, Faroese National Heritage, Tórshavn, Faroe Islands (Presenting author)

Keywords: chapels, church sites, settlement

Presentation Preference - Oral

In the Faroe Islands there are ecclesiastical sites that by tradition or place name are associated with ‘faral’ (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 base 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 and Methodologies GIS mapping is made by a combination of Structure from Motion (SFM). The collected data are analysed, visualised and compared in an ArcGIS environment. This paper will present the preliminary results of the project.

---

TH1-28 Abstract 06

The geography of a cemetery – the early Christian cemeteries of Skagaafjörður, North Iceland

Author - Zoega, Gudny, Skagaafjörður Heritage Museum, Sauðarkrókur, Iceland (Presenting author)

Keywords: burial customs, cemeteries, churches

Presentation Preference - Oral

In the last decade early Christian churches and cemeteries in the region of Skagaafjörður, 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 from the beginning of the 11th century. These cemeteries are adding a new dimension to our understanding of the early ecclesiastical landscape in Iceland and how and when important changes may have occurred. In this paper I will explore the differences and similarities that can be found in the layout and organisation of these cemeteries and how they compare with contemporary funerary data from outside Iceland.

---

TH1-28 Abstract 07

Hofstaðir in Mývatnssveit. An early Icelandic religious landscape

Author - Dr. Gestsdóttir, Hildur, Institute of Archaeology, Reykjavík, Iceland (Presenting author)

Keywords: church, Iceland, religion

Presentation Preference - Oral

In 2015 the excavation of the early Christian church and cemetery at Hofstaðir in Mývatnssveit, northern Iceland, was completed. The site which dates from the mid-10th to the early-12th century was typical of the early Christian cemeteries of the period in Iceland, several phases of a central church surrounded by typically Christian graves, inhumations oriented west-east, all without gravegoods.

What is noteworthy however is that only 100m away from the church and cemetery are the remains of a substantial Viking age feasting hall (excavated between 1995-2002). The hall, which has clear pagan symbols, not in the least that its exterior was decorated with at least 23 cattle skulls, was in use for a relatively short period, constructed in the late 10th century, and abandoned by the mid 11th century.

The Christian church and the pagan feasting hall at Hofstaðir were therefore contemporary for a while. This brings a new perspective to the discussion of early religion in Iceland, where much of the focus has been on attempting to identify a conversion process through the archaeology, in particular religious archaeology. The story suggested by Hofstaðir is quite different, where there seems to be a period of coexistence of these contrasting religions.

In this presentation the results of the two excavations at Hofstaðir will be discussed, and placed within the context of the archaeology of early religion in Iceland in particular, and the North Atlantic in general.
TH1-28 Abstract 08
Communities of death in medieval Iceland
Author: Prof. Vésteinsson, Orri, University of Iceland, Reykjavik, Iceland (Presenting author)
Keywords: church, Iceland, Medieval
Presentation Preference - Oral

In Iceland, the introduction of Christianity around 1000 AD was associated with fundamental changes in burial customs. In pre-Christian times each farm had had its own cemetery but under the new custom only about a half of the farms had churches with cemeteries. Farms without a church and cemetery are as a rule those of lower status and their occupants presumably buried their dead either in their neighbours' cemeteries or (if different) in the cemetery of their patron or landlord. Already within the first century of Christian practice the small farm-based churches began to lose their number and the 12th and 13th centuries are characterized by their continued decline and by increasing centralisation of functions in churches which would eventually become parish centres. The paper will explore how this development, from private to communal cemeteries, reflects fundamental changes in community organisation and social structure.

---

TH1-28 Abstract 09
"Small churches" in Norse Greenland – what became of them?
Author: Dr. Arneborg, Jette, Danish National Museum, Copenhagen, Denmark (Presenting author)
Keywords: Churches and church-farms, Norse Greenland, reorganisation of ecclesiastical landscape
Presentation Preference - Oral

Greenland was settled in the later part of the 10th century when Christianity had been introduced in northern Europe. Christianity was a part of the settlers’ kit, and churches and churchyards were built on the farms from the very beginning of settlement. The churches were built close to the farmhouses, and they were characterised by their "secular" architecture, small size, and a surrounding circular, or sub-circular, enclosure. During the 13th century the early churchyards were taken out of use, as were apparently the church buildings, and a number of farms lost their status as church farms. In the same period new and larger churches were built either on earlier church farms or on newly established ones, now adapting "traditional" church building architecture known in Scandinavia. Based on archaeological excavations of “small churches” 2001 – 2010 I will explore the changes in Norse Greenlandic church building in the context of ecclesiastical and community organisation.

---

TH1-28 Abstract 10
A World Apart? Burial Rites in a Scottish Carmelite Friary
Author: Hall, Derek, Stirling University, Perth, United Kingdom (Presenting author)
Keywords: Carmelites, leather shoes, wooden staff
Presentation Preference - Poster

Ongoing excavations of the site of the medieval Carmelite friary of Tullilum in Perth, Scotland in advance of its redevelopment have located at least 300 human burials in the friary church. The earliest group of these burials are consistently buried with wooden "staffs" which are apparently not functional objects but symbolic and two of the other burials were found to be wearing leather footwear. This paper will consider the meaning and significance of these and other unusual burial rites from the site in comparison with other similar examples from England and Scandinavia.
Interpreting the Archaeological Record

TH1-29 Abstract 02
Reconstructing the Past

Author: BA Gerrit Jacob, Schippl, Reinwardt Academy, Utrecht, Netherlands (Presenting author)

Keywords: Archaeological reconstructions, Museological theory, Open air museum

Presentation Preference: Oral

One way in which an archaeological record can be recontextualised is through reconstruction. Visits of visitors to archaeological open-air museums can experience what the meaning and importance of these objects was for their original creators and owners. A reconstruction provides a sense of realism, since not only sight but also other senses are involved.

This research will give insight into the differences 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.

Presentation Preference

Keywords:
- Archaeological Reconstructions, Museological Theory, Open Air Museums

---

TH1-29 Abstract 03

Turves and trusses: reconstructing an early medieval building tradition in the northern Netherlands

Author: M.A. Postma, Daniel, 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 borne out by the fact that many have been built in open air museums or open (freely accessible) landscape settings. In professional archaeological reports too, reconstructions, or reconstruction drawings to be precise, help to convey the archaeological message to a larger public.

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 the practices seem so resistant to be adhered to in practice. Perhaps museums prioritise different criteria than academic building researchers? Perhaps academic researchers lack sufficient knowledge and experience regarding ancient building techniques? And from this: should we not distinguish more clearly between different kinds of reconstructions, each aimed at different kinds of public?

Presentation Preference

Keywords:
- Archaeological Reconstruction, Community Engagement, Outreach

---

TH1-29 Abstract 04

Using Archaeological Reconstructions for Outreach and Community Engagement

Author: Dr. Thomas, Ben, Archaeological Institute of America, Boston, United States of America (Presenting author)

Keywords: Archaeological Reconstruction, Community Engagement, Outreach

Presentation Preference: Oral

It has become increasingly more common, when presenting the results of archaeological projects, to include some form of digital or physical reconstruction of the artifacts and features uncovered at the sites. These reconstructions range from three-dimensional replicas of objects and buildings to virtual museums and exhibits. In this presentation, using information drawn from site preservation projects supported by the Archaeological Institute of America (AIA) in Balboa, Cyprus, Guatemala, Jordan, Turkey, and the USA, the author will present six examples of how reconstructions, both digital and physical are being used to present archaeological information both to a local and global audience. The paper will also discuss how the projects are using archaeological reconstructions to inform and educate local communities about the significance of the sites and to engage them in the preservation and protection of the sites.

Presentation Preference

Keywords:
- Archaeological Reconstruction, Community Engagement, Outreach

---

TH1-29 Abstract 05

The Reconstruction of three Roman Houses at the Archaeological Park at Xanten (Germany)

Author: Dr. Kienzle, Peter, LVR Archaeologischer Park Xanten, Xanten, Germany (Presenting author)

Keywords: Experimental Archaeology, Presentation, Reconstruction

Presentation Preference: Oral

In Roman times the Colonia Ulpi Traiana (CUT) located in the lower Rhine area of Germany was second only to the provincial capital Colonia Claudia Ara Agrippinensium (Cologne) in Germany inferior. In the late 1960s the extent of the Roman city was known and large areas of the Roman city were used by agricultural means. However, some parts of the archaeological site were scheduled to become an industrial estate. To prevent further destruction the Archaeological Park at Xanten (APX) was founded in 1973 at the site of the Roman Colonia Ulpi Traiana to protect and to present the remains of this major Roman city.

The APX employed physical reconstructions as one of several methods to explain the importance of the site and the Roman past to a wider audience. From 2007 to 2013 these Roman houses were reconstructed in the eastern quarter of the Colonia at the original site of the excavations. Strong emphasis was put on a careful protection of the historic remains with elaborate foundation methods. The reconstructions were executed in rammed earth technology and timber framing partiels with reflecting the building methods of Roman times in the lower Rhine area. The roof was covered with replicated tiles produced in a wood-fired kiln. Many materials and building techniques from Roman times were studied and re-invented for its practical use. The aim of the reconstruction work was to get as close as possible to the original Roman building methods in order to understand the ancient construction processes and the time and knowledge necessary to execute the work.

The scholarly results of the building process will be published while the physical reconstructions will serve the visitors to learn more about the Roman past, the ancient building technologies and modern conservation methods and will serve the scholars to learn more about the long-term performance of the building materials and construction techniques from the Roman period.

Presentation Preference

Keywords:
- Experimental Archaeology, Presentation, Reconstruction

---
Interpreting the Archaeological Record

TH1-29 Abstract 06
The “Arty” Way - Dutch Approach to the Presentation of Archaeological Heritage

Author - Dr. Kochen, Marc, MARC heritage consultants, Bemmel, Netherlands (Presenting author)
Keywords: Interpretation, reconstruction, visualization

Presentation Preference: Oral

Aim of this paper is to present a new approach in the Netherlands and discuss its pros and cons with the international community in order to contribute to the ICOMOS Debate on Permissibility and Standards for Reconstructions of Monuments and Sites and to answer some questions asked in the session proposal.

Early 2013 an online survey was presented by the ICOMOS ISC 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 cultural heritage interventions, and a need towards significant commercialization of reconstruction activities.

To contribute to the debate, I will present the Dutch approach on the subject of reconstruction with a specific focus on the archaeological heritage.

In contrast to most European countries, there is in the Netherlands no tradition in physically reconstructing archaeological sites due to the lack of visible archaeological substance. More artistic approaches 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 an in situ conservation of archaeological remains, such as Huis Moerenburg in Tilsburg.

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.

Keywords: archaeological heritage, cultural heritage, interpretation, reconstruction, visualization

Illustrating 8,000 years of environmental change and human impact in the Areuse River Delta

Author - Lic. phil. I Kraese, Jeannette, Office du Patrimoine et de l'archéologie du canton de Neuchâtel, Häuteville, Switzerland (Presenting author)
Co-author(s) - Thew, Nigel, Office de la culture (OCC), section d'archéologie et de paléontologie, canton de Porrentruy, Switzerland
Co-author(s) - Von Burg, Alexander, Federal Roads Office of Switzerland (FEDRO), Bern, Switzerland
Co-author(s) - Elmer, Clotia, Office du Patrimoine et de l'archéologie du canton de Neuchâtel, Häuteville, Switzerland
Co-author(s) - Raspay, Katherine, Office du Patrimoine et de l'archéologie de Neuchâtel (OPAN), Häuteville, Switzerland
Keywords: environmental change, human impact, reconstruction drawings

Presentation Preference: Oral

The delta of the Areuse River lies between the foot of the Jura Mountains and the north-western shore of Lake Neuchâtel. Archaeological investigations 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 work, the delta was identified as a key site for understanding the prehistoric and early historic human occupation of the region. The Areuse Delta Project was set up to study the archaeological remains of this period and to interpret the environmental change that occurred over the last 11,000 years.

Detailed palaeontological investigations, together with vegetation and archaeological evidence, show a remarkable history of alluvial change and human occupation that covers the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9,000 BC) to the post-Medieval period, and since the Middle Neolithic most channels were found to contain archaeological remains.

Five reconstruction drawings representing the alluvial plain of the Areuse River during the Older Atlantic period, the Middle Neolithic, the Late Bronze Age, the Roman period and the Early Medieval period were created in order to illustrate the synthesis of these data in a broader context. These drawings were used as a learning tool for students and as a basis for public interpretation.

The delta of the Areuse River lies between the foot of the Jura Mountains and the north-western shore of Lake Neuchâtel. The archaeological investigations 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 work, the delta was identified as a key site for understanding the prehistoric and early historic human occupation of the region. The Areuse Delta Project was set up to study the archaeological remains of this period and to interpret the environmental change that occurred over the last 11,000 years.

Detailed palaeontological investigations, together with vegetation and archaeological evidence, show a remarkable history of alluvial change and human occupation that covers the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9,000 BC) to the post-Medieval period, and since the Middle Neolithic most channels were found to contain archaeological remains.

Five reconstruction drawings representing the alluvial plain of the Areuse River during the Older Atlantic period, the Middle Neolithic, the Late Bronze Age, the Roman period and the Early Medieval period were created in order to illustrate the synthesis of these data in a broader context. These drawings were used as a learning tool for students and as a basis for public interpretation.

The delta of the Areuse River lies between the foot of the Jura Mountains and the north-western shore of Lake Neuchâtel. The archaeological investigations 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 work, the delta was identified as a key site for understanding the prehistoric and early historic human occupation of the region. The Areuse Delta Project was set up to study the archaeological remains of this period and to interpret the environmental change that occurred over the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9,000 BC) to the post-Medieval period, and since the Middle Neolithic most channels were found to contain archaeological remains.

Five reconstruction drawings representing the alluvial plain of the Areuse River during the Older Atlantic period, the Middle Neolithic, the Late Bronze Age, the Roman period and the Early Medieval period were created in order to illustrate the synthesis of these data in a broader context. These drawings were used as a learning tool for students and as a basis for public interpretation.

The delta of the Areuse River lies between the foot of the Jura Mountains and the north-western shore of Lake Neuchâtel. The archaeological investigations 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 work, the delta was identified as a key site for understanding the prehistoric and early historic human occupation of the region. The Areuse Delta Project was set up to study the archaeological remains of this period and to interpret the environmental change that occurred over the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9,000 BC) to the post-Medieval period, and since the Middle Neolithic most channels were found to contain archaeological remains.

Five reconstruction drawings representing the alluvial plain of the Areuse River during the Older Atlantic period, the Middle Neolithic, the Late Bronze Age, the Roman period and the Early Medieval period were created in order to illustrate the synthesis of these data in a broader context. These drawings were used as a learning tool for students and as a basis for public interpretation.

The delta of the Areuse River lies between the foot of the Jura Mountains and the north-western shore of Lake Neuchâtel. The archaeological investigations 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 work, the delta was identified as a key site for understanding the prehistoric and early historic human occupation of the region. The Areuse Delta Project was set up to study the archaeological remains of this period and to interpret the environmental change that occurred over the last 11,000 years. Over forty palaeochannels have been identified, dating from the Preboreal (c. 9,000 BC) to the post-Medieval period, and since the Middle Neolithic most channels were found to contain archaeological remains.

Five reconstruction drawings representing the alluvial plain of the Areuse River during the Older Atlantic period, the Middle Neolithic, the Late Bronze Age, the Roman period and the Early Medieval period were created in order to illustrate the synthesis of these data in a broader context. These drawings were used as a learning tool for students and as a basis for public interpretation.
TH1-29 Abstract 10
As Planned, as Built, as Found: Reconciling Written and Field Records at Ksar es-Seghir (Morocco)

Author - Elmi, Martin Malcolm, Portuguese Studies Review / Baywolf Press, Peterborough, Canada (Presenting author)

Keywords: Islamic, Portuguese, Morocco, Ksar es-Seghir, methodology, reverse mapping, GIS, validation of data

Presentation Preference - Oral

The present study reflects the results of a multi-level forensic analysis of archaeological written records, archaeological field data (pre-2000 and post-2000), and competing interpretive models (pre-digital and digital) relating to the colonial urban outpost of Ksar es-Seghir (Morocco). The primary written record baseline was extracted from a fresh critical paleographic reading (edition forthcoming) of the protocol of survey recorded in 1514 CE by a Crown-appointed team of Portuguese architects, administrative agents, and military engineers (Arquivo Nacional da Torre do Tombo (Lisbon), Náutico Antigo 769). This baseline material was then set in the context of all other relevant written records, structural proposals, funding appropriations, Crown instructions, and other documents (1458 - 1549) germane to spatial and structural modeling of the locale. For broader context, the results were correlated with an area-wide (Strait of Gibraltar) analysis of related sites (partly forthcoming as “Keys to the Strait: Fortifications in the Strait of Gibraltar from Abd el-Qasim Yigael to Abd el-As-san AT”, in Stéphane Prudzins, ed., Architecture militaire du Ottom, die la conquête Arabe à l’Empire Ottoman (Cairo: IFAO, 2016) and partly published as “Contours of Battle: Chronicles, GIS, and Topography–A Spatial Decoding of the Portuguese Siege of Tangier, September to October 1437”, Portuguese Studies Review 21 (2) (2013, rel. 2016): 1-125 (Portugal and its Empire, 1128-1809: A Volume of Papers in Honour of Francis Dutra J.). The resulting dataset was correlated, iteratively, in detail, and from a variety of critical perspectives, with data generated by past archaeological projects (1970s and 1980s) that had commenced with the 1974 field season, as well as with data resulting from the post-2010 re-assessment of work on the site under the auspices of CHAM / Escola de Arquitectura da Universidade do Minho and of the Direction du Patrimoine Culturel (Morocco). In the final stage, the project then proceeded to engage critically with various interpretive traps, possible omissions, likely flaws, or failures of coherence detectable in existing models of the locale (Ksar es-Seghir) as products of the long-run inter-disciplinary research covering Ksar es-Seghir. The goal was to shed light on the variety of processes through which diachronically cumulative errors of interpretation or modeling traps may arise. The conference presentation seeks to highlight issues of methodology and procedure, particularly with regard to interpretation, reconstruction, and resulting overall visualization.

TH1-29 Abstract 11
Reconstructing the Form of Late Neolithic Rondels

Author - Dr. Klára, Jarošová, Institute of Archaeology CAS, Prague, Praha, Czech Republic (Presenting author)

Co-author(s): Varečka, Petr, Institute of Archaeology CAS, Prague, Praha, Czech Republic

Keywords: Enclosures, Neolithic, Virtual reality

Presentation Preference - Poster

The poster will present features of a circular ground plan, so called rondels, the function of which is assumed to be socio-ritual that appears in the Central European area in the first half of 5th millennium BC. Nowadays, we can only record the subterranean parts – i.e. one to four ditches, and one to three inner palisade trenches. Based on an intensive research that has been going on for almost 40 years, the ideas of the original form of rondels including wooden construction parts have changed in some aspects. Most common view is that a rondel is a solid palisade enclosure further enclosed by ditches. There are two, three or four entrances to the centre of the rondel.

Some researchers believe that from the centre of the rondel it was possible to observe the movement of the Sun, the Moon etc. during special occasions e.g. summer and winter solstice. However, is this prevailing opinion right? What would rondels with several ditches look like if there were parallel mounds or ramparts between them? Is there a possibility that there might have been buildings or other structures in the middle of the rondels? What would rondels look like if they had a roof above the central area? The poster will present some original alternatives of rondel virtual reconstructions based on archaeological excavations.

TH1-29 Abstract 12
From archaeology to the restoration: the reconstruction of tile stoves in the New Jerusalem

Author - Glauserova, Olga, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)

Keywords: 17th century, New Jerusalem Monastery, the reconstruction of tile stoves

Presentation Preference - Poster

Workshops of the New Jerusalem Monastery are deservedly considered as one of the main sources of Russian production of the tile. During the excavations of recent years it was discovered a huge number (over 50,000) of previously unknown stove tiles. The tile workshops, kilns, stocks of finished products and remains of standing ovens were excavated. A lot of stone tiles were found near the base of these ovens.

Patriarch Nikon laid the foundations of a tile business in Russia. He invited artists from different regions and from other countries. Among ovens of the 17th century, we see the ovens, the roots of which can be found in Northern Europe, Italy, different regions of Belarus, in the Trinity-Sergius Lavra, Moscow. Later New Jerusalem craftsmen formed their own original style with special local appearance of tiles. At the beginning of the 18th century Peter I sent two Swedish prisoners for the organization of the tile production in the New Jerusalem. They, apparently, were the authors of tiles with symbolic scenes. Of particular interest is the oven, lined with 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): Cesari, Filippo, Università di Padova, Padova, Italy

Co-author(s): Galeazzi, Gian, Università di Padova, Padova, Italy

Co-author(s): Viti, 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 open-source 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 3D 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 amphorae and RTI images of stamps might be the creation of open online databases of amphorae and stamps from the Mediterranean; measured and scaled reproductions of amphorae using 3D printers, to be used for archaeologists in museums or archeology educational purposes.
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

Title: Evaluating the importance of osseous tools in the Early Holocene: a European perspective

Author: - Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
- Lübke, Harald, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

Keywords: bone, antler tools, technology, typology

Presentation Preference: Oral session

Organic tools are an important aspect of prehistoric societies, especially in the Stone Age. Therefore the analyses of these can give deep insight into people’s typological and technological constraints such as behaviours. Being widely available in hunter-gatherer communities osseous materials have to be considered as one of the main resource for tool production in the past. However, in a European scale, the discovery of objects made with bone, antler and tooth is very irregular. Obviously, these contrasts are related to taphonomic issues but also to economical and cultural aspects.

The session “Evaluating the importance of osseous tools in the Early Holocene: a European perspective” is meant to deal with a wide range of topics related to the analyses of osseous material. Apart from classical approaches, especially technology and typology, we would like to integrate the results from other disciplines and approaches to discuss from a European perspective. For instance, archeozoology or use-wear analyses on bone and lithic tools can also be considered as crucial to a better understanding of the role osseous industries played in Early Holocene communities. This session will also be the occasion to debate taphonomic issues and various contexts of discoveries which influence the archaeological visibility of this group of tools. Consequently we encourage researchers to address these and comparable questions from their very own perspective and contribute to our session.

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)
- Lübke, Harald, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

Keywords: Early Holocene, introduction, osseous tools

Presentation Preference: Oral

Organic tools are an important aspect of prehistoric societies, especially in the Stone Age. Therefore the analyses of these can give deep insight into people’s typological and technological constraints such as behaviours. Being widely available in hunter-gatherer communities osseous materials have to be considered as one of the main resource for tool production in the past. However, in a European scale, the discovery of objects made with bone, antler and tooth is very irregular. Obviously, these contrasts are related to taphonomic issues but also to economical and cultural aspects.

The session “Evaluating the importance of osseous tools in the Early Holocene: a European perspective” is meant to deal with a wide range of topics related to the analyses of osseous material. Apart from classical approaches, especially technology and typology, we would like to integrate the results from other disciplines and approaches to discuss from a European perspective. For instance, archeozoology or use-wear analyses on bone and lithic tools can also be considered as crucial to a better understanding of the role osseous industries played in Early Holocene communities. This session will also be the occasion to debate taphonomic issues and various contexts of discoveries which influence the archaeological visibility of this group of tools. Consequently we encourage researchers to address these and comparable questions from their very own perspective and contribute to our session.

TH1-30 Abstract 02
Evolution in bone exploitation during the Late Mesolithic at Zamostje 2 (Russia)

Author: - Tschudit, Julien, Panthéon Sorbonne University, Champagne au Mont d’Or, France (Presenting author)
- Lozovski, Stephen, L’Université de Montréal, Montréal, Canada
- Manninen, Mikael, University of Oslo, Oslo, Norway

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 held an essential place in the everyday life of these societies (Lozovski & Tschudit, 2003). Past typological studies have long stressed the importance of such productions (Lozovski, 1998, 1999; Tschudit, 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) was exploited at Zamostje 2 offers the opportunity to do so (Lozovski et al., 2013; Lozovski et al., 2014). Throughout this period, communities mainly hunted elk (Chaix, 2003, 2009). Their skeletons were then used to produce blanks. However, according to the way of life of these groups, they seem to gradually change their technical features by stopping to use breaking by direct percussion for the benefit of breaking by indirect percussion and grooving techniques. This aspect should suggest interesting technical evolutions between the first and the second half of the Late Mesolithic, via a more important management of the osseous production. By comparing this data to other categories of material, it is possible to observe some fascinating technical and economical shifts around 6500 cal. B.C which in 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. Zhitli, Mikhail, Institute of Archaeology RAS, Moscow, Russian Federation (Presenting author)

Keywords: Use-wear, flint, bone, projectiles, dagger

Presentation Preference: Oral

Pre-boreal and early Boreal post-bag sites in the Volga-Oka interfluve produced a number of slotted bone arrowheads, javelin heads and daggers. Some of them preserved flint inserts in situ in slots fixed with glue. From typological point of view the majority of them are unprepared regular microblades. Some are trimmed with fine retouch along one lateral side. Scarcely obliquely truncated 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 were kept in a groove. Use-wear traces at inserts from slotted bone projectile heads inserts of daggers exhibit edge damage in the form of fine to coarse 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 as a result of contacts of inserts with bones and other hard tissues when chipping of inserts edges happened. Use-wear at the end of bone slotted daggers showed that they were used for both stabbing and cutting some soft medium dirty material (skin and flesh of hunted animals) at different angles. Observed use-wear suggests that composite daggers were used as modern hunter’s knives combining a stabbing weapon and a butchering tool. Distinct types of use-wear observed at inserts preserved in situ in bone projectile heads and daggers will help to identify such inserts in lithic inventories of Mesolithic sites.

TH1-30 Abstract 04
The biography of an Estonian Mesolithic slotted bone dagger

Author: - PhD student Jensen, Mathias P.B., Aarhus University, Helsingør, Denmark (Presenting author)
- Bye-Jensen, Peter, University of Southampton, Southampton, United Kingdom
- Manninen, Mikael, University of Oslo, Oslo, Norway
- Lübke, Harald, Centre of Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

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 peat digging in the 1920’s with no associated Mesolithic finds and had only been typologically dated to the Mesolithic. By using a combination of different scientific methods the dagger went from an isolated, undated, and unique object to a tool with a complex life history extending more than 9000 years.
TH1-30 Abstract 05

Time after time - First results of typochronological analyses at Hohen Viecheln, Germany

Author - Dr. Groß, Daniel, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany (Presenting author)
Co-author(s) - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany

Keywords: bone tools, Early Holocene, radiocarbon dating

Presentation Preference - Oral

Excavated in the 1990s, Hohen Viecheln 1, Lkr. Nordwestmecklenburg, is one of the most striking sites of the early Mesolithic in the European Lowlands. The abundance of finds and good organic preservation characterise the site, which is located north of Schwerin in eastern Germany. Among German scholars, Hohen Viecheln is ranked alongside Bedburg-Königshoven, Frascati, Duvensee, Mellerup, and Star Carr, but internationally it usually is not accorded this significance. This relative obscurity seems even more surprising, given the abundance of finds made from different raw materials, but it is grounded in the site’s research history.

In this presentation we will present first results of an ongoing research project on Hohen Viecheln which aims at clarifying the presence of the early Mesolithic in the Lowlands. By this it will be possible to adequately position the site within the Mesolithic and add valuable chronological and methodological information to the understanding on osseous tool development in the Early Holocene. The re-evaluation also allows the accurate dating of the numerous bone points, for which the site is known.

The modern re-evaluation also renders possible to solve problems on the stratigraphic sequence. Due to the fact that the site represents a former shore area of the modern Lake Schwerin its stratigraphic sequence with different layers of peat, sand and gyttja is typical for overgrown lakes. The direct dating of several artefacts therefore allows us to understand when different areas were settling up.

TH1-30 Abstract 06

Not that simple! A debate about the apparent decrease of bone tools in the Paris Basin Mesolithic

Author - Post-doc, Guéret, Colas, Nanterre, France (Presenting author)

Keywords: Bone industry, Mesolithic of Paris Basin, use-wear analysis of lithic tools

Presentation Preference - Oral

In contrast to the Upper Palaeolithic period, it is widely admitted that bone industries have played a minor role in the economy of Mesolithic societies of Northern France. This fact is based on the scarcity of osseous tools and debitage waste discovered in the settlements and the spectacular decrease of lithic burins and borers generally associated with bone and antler working.

Nevertheless, for a long time, the archaeology of Mesolithic in Paris Basin has only excavated dry-land contexts where organic materials were not preserved. Since 30 years, rescue archaeology has allowed us to discover well-preserved sites in the valleys: evidence of osseous industries are now increasingly numerous, even if the data still remain occasional. In addition, in the last few years, the development of use-wear analysis of lithic tools gives us new informations about the place occupied by osseous 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 under-estimate the role of antler, bone and teeth in the daily life of hunter-gatherer communities. Finally, we will compare the situation of Northwestern Europe with neighboring regions, in particular to the Maglemosian techno-complex, well known for its abundant bone industry.

TH1-30 Abstract 07

The use of osseous raw material of Vlakno cave (Croatia)

Author - Radovic, Sinisa, Croatian Academy of Sciences and Arts, Zagreb, Croatia (Presenting author)
Co-author(s) - Vitezovic, Selena, Institute of Archaeology, Belgrade, Serbia

Keywords: bone industry, research on bone tools, analysis of bone tools, experimental archaeology

Presentation Preference - Oral

Vlakno cave is located on Dugi Otok (Long Island), situated in the northern Dalmatia. Systematic archaeological excavations revealed rich stratigraphic sequence from the Late Upper Palaeolithic to Mesolithic. Excavated deposits yielded tens of thousands of vertebrate remains, mostly skeleton remains of large mammals. Considering the amount of available osseous materials it is natural to expect correspondingly high amount of tools made of bone, teeth and antler. Here we integrate results of archaeological analysis and the study of osseous tools. Raw material selection, technological and typological aspects were analysed. Availability of skeletal elements is compared with raw material choices. Recovered bone and antler tools show very little typological diversity between Epigravettian and Mesolithic layers. However there are some interesting small-scale temporal trends (e.g. retouchers and harpoons being almost exclusively present in older deposits). Authors debate this pattern in tool production as the reflection of environmental and subsequently subsistence changes corresponding to availability of targeted animal taxa.

TH1-30 Abstract 08

Osseous tools in the Mesolithic and Neolithic in the Iron Gates

Author - Dr. Selena, Vitezovic, Institute of Archaeology, Belgrade, Serbia (Presenting author)

Keywords: bone industry, 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. Relative rich finds were published in more detail for the sites in Romania. This paper will focus on the Mesolithic and Neolithic sites from Serbia (Kula, Velenjska, Kripađe, etc.). Technological and typological data will be discussed: raw material selection, manufacturing techniques, etc. Antler was the dominant raw material in the Mesolithic period: the importance continues into the Neolithic period, which especially appears 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 metaphysis. 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 Orłowska, Justyna, Nicolaus Copernicus University, Toruń, Poland (Presenting author)

Keywords: bone and antler, experimental archaeology, taphonomy

Presentation Preference - Poster

Taphonomic issues are one of the most important factors that must be concerned during study of every archaeological bones or osseous artefacts. Especially, if our analysis is subordinated to technological or use-wear traces. Identification of human or nonhuman modifications is thus crucial. Weathering, trampling, tooth marks, root etching or sedimentary abrasion are just the examples of possible nonhuman destroying agents. The main goal of presented study was to understand and describe changes resulting from the different kinds of sedimentary abrasion (among others bioturbation and movement in an aqueous setting) on the bone surface. The experiments related to the study have been divided into two main parts. One was connected with modifications observed on raw bone surfaces. The second one, with degradations raised on processed bone surfaces (among others scraped, polished) and their possible influence on the morphology of observed traces.

TH1-30 Abstract 10

A replication of Neolithic bone harpoon with engraved concentric circles from Šventoji, W Lithuania

Author - Gaiduskas, 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 Subsloeolithic societies at the environmental setting of the eastern Baltic. The harpoon with a pattern of concentric circles engraved on it was found at the site Šventoji 6, which is a refuse area in the bed of an ancient lagoon lake and is dated to the end of 4th millennium BC. While concentric circles were widely used to decorate bone and antler tools and ornaments in different chronological and geographical contexts, there are no analogies for the find from Šventoji 6 from the same period even in the neighbouring regions. The problem is that this type of engraving is mostly associated with metal tools, which could have appeared in the region only in the Bronze Age, after 2000 BC. The foreign origin of the harpoon with concentric circles is confirmed by another find from the same site - a worked piece of bone, on which the manufacture tried to imitate the same decoration of concentric circles, but instead produced polygons with a dot in the center, which look nothing like the engravings on the harpoon. However, a clue for the engraving of concentric circles before the appearance of metals comes from a certain type of Neolithic stone tools in North America. In this paper, we attempt to try to replicate the harpoon using similar stone tools and then compare it to the production of the same artefact using metal tools.
**TH1-31**

**“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 - Rodnikova, Vlasta, Institute of archaeology, Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)**

**Co-author(s) - Schmidt, Erdmute, German Archaeological Institute, Berlin, Germany**

**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: laminar neck-rings (headbands), bracelets, fibulae have been decorated by ornament, made by punches, stamps, chisels.

**Strong profiling** - elements are applied in production of fibulae of type I by G. Kozurhina and T-shaped crossbow fibulae. In A. Oblomskii and R. Terpilovskii’s view their origin is connected with forms of Almen grade IV fibulae. The morphology of the body and tail narrow-width form of the comb most probably are close to fibulae of type IV of B2 period from Southeast Baltic, and forms relevant to Lithuanian territories in B2 and B2/C1 periods. Series of bracelets from Baltic lands dated to the same period are supplied with similar narrow-width formed combs. Drinking horns were furnished with strong profiling endings.

Openwork elements in decoration of enamal V-shaped fibulae, elements of pectoral ornaments, chains of drinking horns, lunulae pendants from Central Dnepr associated by similar ornamental motifs close to opus interrasile style. Closest analogies these elements with geometrical motifs find in contact zones of Baltic lands, in artifacts dated to the beginning and the mid-third century. Artifacts supplied with openwork ornamentation and strong profiling elements find sustained juxtapositions in dress both in Dnepr region and Baltic lands.

In decoration of enamal artifacts from Dnepr jewelry technique with imitation of granulation and filigree has been used. Combs of drinking horns are an ornamental example of punchings 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: s.a. neck-rings with cone-shaped terminals, cluster-shaped pendants, fibulae.

Elements of additional decoration of Dnepr enamal 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. Ambrozin, M. Shihukin, U.Pfeiffer-Frohner appearance of “occulted”-fibulae in Central Dnepr is connected to this region. Decoration of Dnepr comb bracelets with obliques and triangles finds parallels with with bracelet bands of Sudovian and Southeast Lithuanian Cultures of B2/C1-C1 period. Some notes about analogies in Southeast Baltic in S-shaped and “remoloch” ornamentation in decoration of Dnepr laminar neck-rings (headbands) and bracelets were made by S. Voronjotin.

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 fastness of Baltic Cultures. With the support of Russian Foundation for Humanities, project No. 14-01-00289

---

**TH1-31 Abstract 02**

**About two areas of adornments with champlevé enamels hoards**

**Author - Doctor in hab. Obolinski, Andrei, Institute of archaeology of Russian Academy of Sciences, Moscow, Russian Federation (Presenting author)**

**Presentation Preference - Oral**

Adornments with champlevé enamels of the East European style are dated to the end of the 2nd – 4th centuries. Its area covers all Eastern, part of Central, and Northern Europe. There are 2 areas of hoards with these adornments: Western (the Dnieper and Upper Oka river basin) and Eastern (the Upper Don area). In Western area 10 hoards are known (Mchigorya, Moshchina, Borisn, Glazhov, Bryansk Region, Shishino and others). The artifacts in these complexes have certain stylistic unity. In the majority of the hoards female artifacts of different preservation level are presented. There are artifacts of men’s subculture of prestige (Bryansk, Novolokoml’, Moshchina). The bracts from Krasny Bor are unique, but they make a single ritual or ceremonial set. These artifacts were used as intended by their owners before they came to hoards. The majority of adornments in these hoards relate to the middle stage of enamel style development. Artifacts of degradation stage were found in two complexes (Moshchina and Bryansk) together with them. Thus, all the 10 hoards belong to the same chronological period. In the wide framework they are dated to the end of 2nd – 3rd centuries, in the narrow – about the middle of 3rd century. In the Dnieper area attires with enamel adornments belonged to Late Zaporizhia and Kievan population. All hoards were found in the area of Kiev culture or near its border (Moshchina). Thus, the Dnieper hoards area is directly related to Kiev culture. In Eastern area 4 hoards are found (Zhuravka, Panikovets, Zamatin-Yuryevo, the Labedyan’ 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 adornments from Don hoards relate to the middle stage of enamel style evolution. In the same complexes adornments of the degradation stage were also found. In Don hoards, as well as in Dnieper/Oka complexes, hinged bracelets, “Okha” fibula, single late Sarmatian and Central European artifacts are known. So Dnieper/Kievan hoards belong to the same period. As Dnieper/Oka hoards. Western area hoards are complexes of female dress accessories sets and items of men culture of prestige. The Don hoards are complexes of handicraftsmen raw materials. The two territorial groups are essentially different. The mass spread of adornments with enamels in the Don area may be explained by attacks of this region population on the Dnieper/Oka territory. The Don population was not interested in adornments, but in scrap metal. Perhaps, these attacks were also the main reason for hoards holed 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, Kasthina – Siedelie cultural group was formed.

The report is prepared on the RGNF project No. 14-01-00289.
Interpreting the Archaeological Record

TH1-31 Abstract 04
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 enameled objects appear in the Baltic, Upper and Middle Dnieper regions in the mid-2nd century AD. From this area they spread rapidly over a wide territory, reaching the Crimea and the Caucasus at the South and the Kama region at the East. They were usually considered to be influenced by provincial Roman enamels and made by low or possibly itinerant craftsmen using glass beads as raw materials. The ornaments made in this style have drawn scholars’ attention for more than a century. Nevertheless, technological studies of such objects are quite a new research area, recently introduced by A. Bilner-Witblieska and T. Stawiarska. The technological investigation of enameled 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. AD. It contains 24 ornaments with enameled 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, by provincial roman origin. Regarding the style wherein the ornaments were made it appears that the East European enameled objects seem to make part of articles, custom-made for Barbarian people by late antique craftsmen. Possible production centers for them have not been discovered so far. They were likely located in zones of the most active contacts between Barbarian and late antique population. It is very tempting to assume their location at the Barbarian settlements characterizing by the presence of late antique representatives, numerous imports and developed handicraft industry, interpreted as regional industrial, commercial and administrative centers, and also trading posts beyond the limes.

The funding for this project was provided by Russian Foundation of Humanities, № 14-01-00269а.

TH1-31 Abstract 05
Cultural and economic exchange in the Dnieper-Donets forest-steppe during Late Roman Time
Author - Dr. Schultz, Erdmute, DAI, Eurasia Department, Berlin, Germany (Presenting author)
Co-author(s) - Lubochov, Mikhail, Karazin University Kharkiv, Kharkiv, Ukraine
Keywords: Chernyakiv culture, cultural exchange, settlement activities
Presentation Preference - Oral

During the first centuries AD comprehensive settlement activities took place in the expanse of the watershed between the Dnieper and the Soversky-Donets rivers, processes in which the Chernyakiv and Kiv cultures as well as nomadic Sarmatian tribes were involved. The interactions between these groups are considered on the base of recent investigations in this area. Special attention will be paid to material of the Chernyakiv culture concerning indicators for influences of other groups on the burial rites, the geographical position and structure of the settlements. Furthermore imported objects from the sites like amphorae, glass beakers and others will be discussed as evidences for the exchange between the “barbarians” and the ancient cities of the Black Sea coast.

TH1-31 Abstract 06
Glass vessels of the Chernyakiv culture – technology and origin
Author - Likhter, Julija, 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 ground 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.

TH1-31 Abstract 07
The commemorative gifts or immolating of items? (The New materials of Hun-Sarmatian time from the territory of Kazakhstan)
Author - Dr. Bogdanov, Evgeniy, Institute of archaeology and ethnography SB RAS, Novosibirsk, Russian Federation (Presenting author)
Keywords: ritual ceremonies, burial gifts, Mangyshlak Peninsula
Presentation Preference - Oral

A few stone constructions were investigated at the territory of Mangyshlak Peninsula (Republic of Kazakhstan) in 2014 – 2015. The space inside of stone fence contained the traces of varying ritual ceremonies: crushed crotchets, vessels, embedded into the earth, and calciferous alters. In addition, the one small pit contained the bridle kit, another one – the belt kit consisted of incrustate items, and the third – the remains of saddle (silver margins and details of garniture). All components of material complex correlate with items of 5 – 6 centuries, found at the territory from Danube to Southern Urals. 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. Korn. We made the case, which evidenced the appearance of developed cults, associated with sacrificial gifts of prestige items in Caspian Sea region.

The formation of these rider rituals are in account with nomads, who came to the new territory together with Hun invasions of West and South.

TH1-31 Abstract 08
Controversial problems of studying early medieval hoards in the Middle Dnieper region
Author - Doctor Shchedrova, Olga, Institute for the History of the Material Culture, St. Petersburg, Russian Federation (Presenting author)
Keywords: Hoards of metal ornaments, individual attire, interpretation of archaeological sources, Middle Dnieper region
Presentation Preference - Oral

Hoard of metal ornaments for a long time have been considered the sole archaeological source of the third quarter of the 1st millennium AD in the Middle Dnieper. After the discovery of settlements and cemeteries study hoards become secondary. Objective circumstances of the past 20 years, namely:

• The lack of systematic scientific field research as the settlements and cemeteries 7-8 centuries AD on the territory of the Middle Dnieper region
• The only complexes in which can be credibly traced co-occurrence of artifacts are fixed treasures.
• Uncontained spread of extortionate 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 irremediably lost, they are removed from the complexes and the cultural layer.
  3. The only complexes in which can be credibly traced co-occurrence of artifacts are fixed treasures.
• 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
TH1-31 Abstract 09
Sites of the late stage and the end of the Imenkovo culture in the Middle Volga region

Author: Dr. Prassolow, Jaroslaw Aleksei, ZBSA, Schleswig, Germany (Presenting author)

Keywords: early medieval archaeology, Imenkovo culture, Middle Volga region

The issue of defining the time and circumstances when the one of the largest early medieval archaeological cultures of the Eastern Europe ceased to exist is the most debatable one for the archaeology of the Middle Volga region. For years of Imenkovo culture studies, several completely opposite hypotheses on this issue were developed. The majority of the hypotheses are of historiographical interest, but the issue still remains debatable. According to various researchers, the cessation of existence of Imenkovo culture is related either to the leaving of population from the region at the end of the 6th - the beginning of the 7th c. (Alexey Bogachev) or at the end of the 7th c. (Evgeniy Kazakov) or to the slow dissolution in the culture in the early Volga Bulgarian culture in the 8th-9th centuries (Galina Matveeva, Yuri Semyrny).

As a result of the recent research, it became possible to determine at least two stages of the Imenkovo culture: the early one in the 4th-5th c. and the late one dated 6-8th c. The chronological framework of the last stage was determined according to details of heraldic-style belt-sets, Sassanid coins, several furniture and costume details.

The purpose of the study was to determine the late Imenkovo materials from Kommers 2 burial ground and Maklasheevka archaeological complex in trans-Volga area. 'Osh-Pando' hillfort in the Middle Sura region. These sites are very similar in culture and dated 6th - the first half of the 7th c. The common feature of this group is the mix of classical Imenkovo cultural complex with 'western' 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 site have visible traces of the 'southern-western' direction of cultural ties.

The hillforts 'Asna-Panda' and 'Shorn' in the Middle Sura region are related to the 'final' stage of the Imenkovo culture. The both of the sites are of the second half of the 7th c. (the beginning of the 8th c. is also possible). These sites have a significant difference in ceramics and artefacts, therefore, the 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, sites 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 Dollkieim/Kovrovo type in the light of new research data

Author: Dr. Prassolow, Jaroslaw Aleksei, ZBSA, Schleswig, Germany (Presenting author)

Keywords: fibulae of Dollkieim/Kovrovo type, Kalininograd region, former East Prussia, Sambian-Natangian culture, chronological frame

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 Dollkieim-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 Dollkieim/Kovrovo type. For this purpose presumed mutual occurrence of several fibulae types as well as other characteristic artefacts (i.e. chronographic markers) in the burial complexes are discussed in detail in the artefacts chronography. The transition from the Late Roman period to the Early Migration period and the diachronic typological tendencies within the framework of the later period are demonstrated by means of the comparative analysis results of the so-called big crossbow fibulae, characteristic for the Late Roman period/the very beginning of the Migration period, the so-fibulae with the star-shaped foot, fibulae of type Schöning/Rawacz and Dollkieim/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 chronomarkers of the periods in question (bone-daggers, shoulder straps, jewelry, belt ends, buckles as well as specific patina forms) apply to the investigation as well. Most of the discussed burial complexes were discovered during excavations performed in the historical East Prussian districts of Samba and Natanga on the flat burial sites Bol’shoje Isakovo (former Lauth), Schossensee-1 and Schossensee-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. Rziz Del Arbor Moro, Maria, Institute of History, CSIC, Madrid, Spain (Presenting author)

Keywords: Poland, Roman period, Salt production

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 (Kuavian and Great Poland), during the period of the Roman influences (II-III AD). The essential underlining idea of our investigations is the role of salt as a structuring territorial resource and its importance to understand the complexity of social transformations of indigenous communities in the period of the contacts with Rome. Thus, this study involves both the examination of the archaeological evidence for salt resources and its historical interpretation within a regional context and the study of the chronological and geographical implications of exchange and its consequences in terms of social change.

The cessation of the exploitation of the most part of the saline resources in the study area was related to the first half of the 4th century AD, while the exploitation of the eastern Polish part continued until the end of the 8th century. Our research is based on the examination of the distribution of salt extraction sites, their functional characteristics, and the analysis of the exploitation methods, taking into account the influence of the old cultural traditions, the political context of the Roman Empire, and the evolution of the local society and economy.

---

TH1-31 Abstract 12
Langobards necropolis on the Danube: material culture and social identity

Author: Cordomaz, Federica, Università degli Studi di Trieste, Gorizia, Italy (Presenting author)

Keywords: Migrations, necropolis, society

During their migration from Scandavia to Italy, the Lombards settled for about 40 years in Central Europe, in the Danube river area and Pannonia, between Vienna and Budapest, where a lot of burial areas have been found. Here, with Franks people at west, Gepida and Slavs at east, and a lot of autochthonous people of roman tradition, the Lombards feel threatened in their political and cultural independence. Their society was still heterogeneous and various and, to keep their social and political unit, they developed a strongest material culture, that is the expression of different social meanings. This development has a great reflection in the funerary practices. Here, will be analysed the 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 look to Italy in 588.
The presentation is going to discuss results of our research, in which we explored the possibility that we can draw conclusions about the settlement of a certain cultural group indirectly from information about a certain cultural phenomenon of another type and also define possible dates of their settlement. It shall present a possible interpretation of events in the 6th century in the western Pannonia (i.e. north-eastern Slovenia) and propose a new hypothesis on dating the early Slavic settlement in the afore-mentioned region.

The general consensus among scholars is that the early Slavs did not settle in the area of the western Pannonian Plain prior to the departure of the Lombards into Italy, possibly after 568, but probably only around 560 or later. The historical interpretations in question were proposed mainly on the basis of written sources, since the material evidence for this area was absent.

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 conclusion that challenges the previously well-established expert opinion about the timing of the early settlement of Slavs in modern-day Slovenia. The presentation thus presents results that suggest that the first settlement of the early Slavs in the Pannonian Plain already occurred in the first half of the 6th century. These conclusions were based on three lines of evidence: 1) the study of the pottery; 2) dates obtained from the analysis of the radiocarbon isotope of carbon 14C; and 3) comparison with the spread of the allegedly contemporaneous Lombard settlement north of the Danube and in the Pannonian Plain.

The main argument that supports the possibility of early Slavic settlement in the first half of the 6th century is the Lombard colonization of Pannonia and its archaeologically proven gradual pace to the line Szombathely-Kezthely-Pazic and later colonization of central Slovenia. Unexpectedly, the area between Pannonian settlement and Central Slovenia, i.e. north-east Slovenia, was left unsettled by Lombards. Since the lowland settlement of indigenous Romanized inhabitants in the 6th century was still not discovered, it is strongly believed that Lombards encountered the early Slavic settlement west of the above-mentioned line. A further argument for the hypothesis is the archaeologically proven fact that both early Slavs and Lombards respected the borders between areas of their settlement north of the Danube, which is also supported by 14C dates.

---

**TH1-31 Abstract 17**

**Burials with weaponry of the upper Dnieper version of the Zarubintsy culture**

**Author:** Voroninigud, Laisaa, The State Hermitage Museum, St. Petersburg, Russian Federation (Presenting author)

**Keywords:** upper Dnieper, weaponry, Zarubintsy culture

One of the specifics of the upper Dnieper version of the Zarubintsy culture making it different from the Polissie and middle Dnieper versions is a custom of placing weaponry in a grave. On the burial ground Chaplin 14 spear and dart heads (5%) were found in 282 burials, on Yurkivets in 1 out of 19 (5.3%). On the burial ground Gorzinokov spearheads have been found in six investigated burials out of 32. All the heads are of iron, socketed, with a leaf-like feather, and bear traces of having been in fire. On the outside of the socket of one of the heads of the Gorzinokov burial ground (burial No.9) there are prints of fabric preserved. In Gorzinokov 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 horsehoe-like iron flabulae of syzygama type and (or) iron knives with hunched basis. What is more, the knives always lay with the point directed to the side opposite to that of the spearhead.

A unique element for the funeral rites of the Zarubintsy culture is an iron spearhead stuck almost vertically into the bottom of the burial pit with the socket facing upward (burial No.13 of the Gorzinokov burial ground). The custom of dressing 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 thereby give human access to the sky. On the other hand, the weapons were driven into the remains of the buried man demonstrated that there were wide-ranging exchange networks across much of the northern "Barbaricum" during the Roman and Migration periods. Furthermore, both official Roman coins and medallions, as well as their imitations, played an important role in the self-presentation of the barbaric elites. However, the discovery of large quantities of new material, above all from the Ukraine, has radically changed and extended this picture: we now know that the phenomenon was much more widespread and intensive that had previously been appreciated, and that such networks in fact stretched from Moldova and the Ukraine to Scandinavia. The new material allows us to produce a narrative that can be closely linked with the rise of the Gothic Kingdom and its subsequent displacement in the face of the Hunnic invasion.

The numismatic material is the subject of a 3-year joint DFG/NCN Beethoven project "IMAGMA: imagines maiestatis" by the University of Warsaw and the Römisch-Germanische Kommission that aims to understand how these imitations of Roman coins were produced and used by the developing elites right across the northern and eastern "Barbaricum" to demonstrate their status. The picture that is emerging is one of disparate groupings linked together by common elements of material culture and of a wide-ranging exchange network, but above all of the crystallisation of the Gothic power centre on the territory of the Chemnitz/ Sintiana delMures Culture. The coins not only paint a diverse and deep-ranging picture of how such elites saw and expressed there identity, but also with Rome and to each other. They also provide new and revealing insights into the interaction and communication between the northern and eastern barbarians, in particular the Goths on the one hand, and the imperial administration and the population of the provinces of the Roman Empire in Late Antiquity on the other.

---

**TH1-31 Abstract 16**

**A Barbarian, meaning who?**

**Author:** Dr. Narloch, Krzysztof, University of Warsaw, Chojnice, Poland (Presenting author)

**Keywords:** Identification, Relationship and influence, Romans and Barbarians

**Presentation Preference:** Oral

In late antiquity, due to a change in social relations inside the barbarian societies, perception of Barbarians themselves changed as well. As a result of the intensification of contacts which less and less frequently took a form of a one-sided diktat, the late-antique community was of the view that barbarians were a group of people distinct from the rest of human kind, but remaining dependent or menaced by war. The barbarians were, on the other hand, the factor which formed 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.
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 scabbard of a sica, a battle knife (burial No.28) and the spiked head of a Scythian arrow (burial No.30) were found in Goroshkov.

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 2nd–1st centuries BC. In general, the burial Goroshkov can be characterized as a monument left by a militarized group of people at the turn of our era.

TH1-31 Abstract 18
Geoinformation methods in dealing with East European barbarian champlévé enamels

Author - Radysyah, Oleg, Institute archeology of RAS, Moscow, Russian Federation (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 has been made of 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 69 places with the finds in the Dnieper region were recorded. The author of the source corpus identified three regions where things with enamels spread: Middle Dnieper, Baltic and Volga-Oka regions.

In addition to the G.F. Korzukhina’s corpus new one was prepared by R.V. Terjapolov and A.M. Obolonsky (2007). It included 142 findings mostly from the Middle Dnieper region. Thus, even on the example of existing source corpuses it is obvious that a significant part of the findings is not related to the scientific excavations. At present the accumulation of sources is irregular. So in the Baltic region new finds are rare and are related to archaeological researches, while in the territory of Ukraine, Russia and Belarus number of known finds has increased significantly. Vast majority of items was found due to the massive looting of archaeological sites. This process has been going more intensively since 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 understanding of the spread of this category of things, its connection with different cultures and its history.

Work was financed on RGNF grant N14-01-00289

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 rings-shaped ends, are a conservative stuff category. In the South Eastern Baltic Area, these are known from stray finds (Turnage) and from burial complexes (Mažonys, Verbalis). In the Dnieper–Oka region, such neck-rings originate from hoards (Moshchny, Muzhigo’je, Glazhevo, Usukh). Amongst the neck-rings of the Mažonys burial ground, there is a specimen cut in two — what could serve as a piece of evidence of ‘killing’ the stuff. In three hoards from the Dnieper–Oka region, cut-neck-rings are known, too. The latter could indicate the sacrificial or votive character of the hoards of enamelled ornaments.

In the vicinity of Ulów (Middle Rzucutice, SE Poland) the complex of multicultural archaeological sites was found. Among them two bi-ritual cemeteries (site 3 and 7) originating from the late Roman Period and the early Migration Period were discovered. On the map of archaeological cultures, Ulów is located in the settlement zone F of the Wielbark Culture. Therefore, the features typical of this culture dominate over the cemeteries discovered in Ulów. However, no fewer is the number of features of funeral rite, location of the site, as well as grave goods possessing parallels in other cultural units from the European Barbaricum (e.g. Małomłyn 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 potteries from the Wielbark Culture are in most cases imported from the Chernyakhov or Sântana de Mure Cultures. In the light of this fact, surprising is the extraordinary number of wheel-made pottery and its fragment discovered in Ulów. In site no. 7 they comprise more than a half of ceramic ware from the Roman and Migration Periods. In this case, it can not be ruled out local production of at least part of the wheel-made pottery beginning at the phase Crło-C2 and connecting the ornamentation of hand-made Wielbark Culture pottery with the technology and morphology of wheel-made pottery characteristic for the Chernyakhov or Sântana de Mure Cultures.
TH1-31 Abstract 22
The preparatory stage of pottery technology among the Russian forest-steppe cultures in IV-VII AD
Author - Nikitina, Anna, Samara State Technical University, Samara, Russian Federation (Presenting author)
Keywords: ancient pottery, East European Plain, Migration period
Presentation Preference - Poster

The time of the Migration period in the area the Eastern-Europe forest-steppe is associated with the spread the "couch-molded" flat-bottomed non-design ceramics. At this time in the pottery traditions abolished advanced technology associated with Scotch elements and imitations of Roman ceramics, as well as leaving the specifics of Iron Age sedentary cultures. The Migration period pottery is simpler and largely unified, despite the fact that the complexes of findings, social and economic characteristics of different cultural groups are different.

Consideration area includes series of archaeological cultures: Prague-Korchak, Penkovo, Chernyakhov (in part), later Kiev and Kolochino, Mochnino, culture of Volga Rims, Imenkov. Studying of Eastern-Europe forest-steppe sedentary cultures ceramics as a single phenomenon has not been conducted, but there are some works in separately. The main part of the special researches about ceramics are works devoted to the vessels shapes typology, based on the method of ceramics processing, which had introduced into scientific circulation by IP Rusanova and VF Gening in 1973. These typologies had arisen from the mid-1980s and still are working. These include typology of AM Oblomsky, OS Rymantyeva, 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 OJ Malveva, GA Massalitina.

Thus researchers attention focused mainly on the vessels shapes. At the same time, about the pottery technology facts is bit. The first step in this direction has been made by AA Bobinsky. He studied in detail the pottery of the Chernyakhov culture, in particular the selecting and procuring the raw materials, blending the pottery pastes, features of build, the study of pottery circles, the organization of the pottery industry. In addition, technical-and-technological analysis conducted by NP Salugina of the Imenkov culture pottery covered all stages of pottery production and gave a full presentation about the traditions of this population. In recent years, some ceramic sets of Chernyakhov culture began to be exposed to petrographic and X-Ray studies.

We believe the analysis of pottery technologies is the topical question of study of sedentary cultures of the Eastern-Europe forest-steppe, and this stage of our research work is devoted to the characteristics of the raw materials and pottery pastes. Our observations were made on fresh fracture sherds using stereoscopic microscope MS-1. Definition components of raw and paste composition was carried out by collation with a models collection, developed on the basis of Samara expedition to the 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-fat" clays and adding a grogmade of splintered vessels in the composition. We suppose that the detected affinity of pottery traditions is reflecting the close connection within the studied population.
IRON MAKING TECHNOLOGIES AND SOCIAL CHANGE IN THE MEDIEVAL AND EARLY MODERN EUROPE

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room SFS

Author - Haggren, Olof, University of Helsinki, Helsinki, Finland
Co-author(s) - Magnusson, Gert, Jernkontoret, Stockholm, Sweden
Co-author(s) - Tarával, Elina, University of Helsinki, Helsinki, Finland

Keywords: Iron production, social organization, skills, life course, techniques, furnace, charcoal

Presentation Preference - Workshop

Wrought iron has been produced with different techniques. The techniques have in diverse ways been adapted to local raw materials such as the ore and the woodlands for charcoal production. Various raw materials and furnaces required different social organizations. Collecting bog or lake ore could easily be done within a family, while operating a mine was a much more complicated process, which required a larger group of laborers and several specialists. Especially while introducing new techniques skilled experts were needed.

Our aim is to analyze how sites of different technical processes reflect the working groups and their skills. The social complexities differed when running a small bloomery furnace, a high bloomery or a blast furnace. The last two techniques demanded highly skilled workers, a complicated social organization and larger funding in order to run the operations. This resulted in a division between those who operated the furnaces and those who owned the land and the industrial plants like noblemen or monasteries.

There is also the question of the distribution of the products. Small scale production for household use is easy to explain. However, it is hard to understand any large scale production without knowing the demands or purposes behind. Reasons like export oriented trade or military preparations might explain the expansion of a technical development of the production. Analyzing the life course and use of iron objects helps us to understand the production as well.

Several methods can be used for studying these issues, like excavations, landscape archaeology and experimental archaeology.

We invite papers focusing on social organization and local techniques primarily related to iron production, but contributions on copper or silver production are also welcome. The main focus of the session is the Middle Ages and the early modern era, but papers dealing with earlier periods are welcome too.

TH1-32 Abstract 01
Basque Iron metallurgy, habitat and social complexity during the Middle Ages (7th-14th A.D.)

Author - Dr. Jose Luis, Solan, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Asarceta, Agustín, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain
Co-author(s) - Escrivano-Ruiz, Sergio, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

Presentation Preference - Oral

The historyography of the Basque Country has traditionally related the Early and High Medieval iron and steel production with the mountainous areas located generally on the top or flanks of mountainous terrain, equipped with one or more slag-tapping furnaces. These are the so-called hiazoreak, which in the Basque language are wind ironworks, as opposed to the zeharrolak or hydraulic ironworks.

Just as a result of recent discoveries, it seems more likely that this impression is 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 almost 300 villages of Álava from which the monastery of San Millán de la Cogolina (La Rioja) demanded the payment of iron taxes, an obligation that was maintained one century later in the so-called “Falso votos de San Millán”, but which did not extend to the rest of the Basque territories.

This apparent contradiction between archaeological sources and written text has begun to be resolved with the systematic application of new open-area excavation strategies with veritably surprising results. As opposed to the hypothesis of basque metallurgy that basque medieval iron production located exclusively in mountainous terrains a detailed analysis of the archaeological record shows us a much more diversified reality with large metallurgical establishments located in the flat areas of Álava, at the very heart of early medieval villages. The latter is, no doubt, the principal novelty: the location of iron factories in country villages. The development of this metallurgical activity can be divided into two extensive periods. The first, running between 600-950 A.C., is characterised by the existence of several settlements of a rural nature in which the same iron industry is developed, capable of exploiting the entire operational chain. This is, from the reduction of the mineral up to the final forging of the ferramenta (iron). The second period, which runs from 960 to 1400 A.C., presents considerable differences between the sites. Thus, while some basically maintain the pattern of spatial and production organisation of the first phases, others develop rapidly towards fully urban forms. These transformations would bring with them a significant change in the iron production strategy, leaving behind the rural ironsmelting activities and only maintaining the forging activities.

Moreover, the archaeobotanical and metallographic studies undertaken have enabled archaeologists to identify the type of iron mineral used, the different models of exploiting woodland, diverse technological changes in production (obtaining iron or steel according to needs) and other aspects relating to the operation of slag-tapping furnaces and forges.

TH1-32 Abstract 02
The Iron and the Smartphone: ‘expensive’ technologies at the verge of the millennium

Author - Larrain-García, David, UCL Institute of Archaeology, London, United Kingdom (Presenting author)
Co-author(s) - Quirós-Castillo, Juan Antonio, Universidad del País Vasco, Vitoria-Gasteiz, Spain

Keywords: farming iron implements, medieval peasantry, technology

Presentation Preference - Oral

It is widely accepted that the fall of the Roman Empire had a negative impact on the iron industry across Europe affecting its production, distribution and consumption (e.g. Tylecote 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 pockets. Archaeological evidences contribute to this supposed scarcity of metals within the peasantry since agricultural implements of early medieval chronologies are infrequent: typically rather exquisite numbers of barely 1-2 items per site (e.g. Hameower 2011).

In stark contrast with these arguments, recent archaeological excavations on rural settlements from Early to Late Medieval times (Quirós Castillo 2011) carried out 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 –carts 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 pitting, employing occasionally sophisticated techniques such as sandblasting and even the complex pattern welding techniques as far as only seen in the decoration of high status weaponry (Pearce 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 iron produced to that moment and offers a tentative reconstruction of interplay between iron models of production and peasant communities during early EMA in the Basque Country area.

References cited:

TH1-32 Abstract 03
Iron and Society in the Baltic 900 - 1350 AD

Author - Assos, Prof. Magnusson, Gert, Stockholm University, Stockholm, Sweden (Presenting author)

Keywords: Iron production, trade, urbanization

Presentation Preference - Oral
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 Öland 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 specialisation 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 11-1300's. Metals were recovered from rock ore in a new way and on an unprecedented scale. In Bergslagen, Sweden’s economic base was built in a sparsely populated outland. This setting was characterized by diversity and flexibility which characterizes resilience. This paper will discuss Bergslagen as a system network focusing on innovation, expansion and resilience.

During the last decade several medieval rural sites has been under a research in the Western Nyland and from these excavations quite nice amount of objects telling about making, repairing and consuming iron objects has appeared. In this paper the aim is consider the recent finds from a couple well researched villages as well as the castle of Raseborg, which was the administrative center of Western Nyland from the end of the 14th century to the middle of the 16th century. The question is, can the iron production, the trade of iron and making objects be reached by analyzing these objects? Also the life course and use of iron objects found from these sites are considered, as it can give us access to the production as well. The castle of Raseborg had of course a very special need for iron products. For example, the historical sources tell about making firearms and other weapons in the castle at least in the 16th century. Interesting question is, how the castle ensured the access to the raw material and how the production of iron objects was organized.

Was the organization of iron production and distribution somehow changed in the most critical moments during the history of the castle? The aim is also to consider, how the distribution of iron and objects in rural villages was related to the castle located in the same province. Were there perhaps some correlations between the organization of the iron production and distribution of the castle and villages? Just by researching archaeological finds these questions are hard to answer, but by combining the research of historical sources to the research of the material culture, the results might be fruitful.
TH1-33 Abstract 01

The Avellino Event: investigating the migration resulting from the Bronze Age eruption of Vesuvius

Author - Dr. van Veusden, Martin, University of Groningen, Groningen, Netherlands (Presenting author)
Co-author(s) - Attema, Peter, University of Groningen, Groningen, Netherlands
Co-author(s) - van Oppel, Marco, University of Groningen, Groningen, Netherlands
Co-author(s) - Codromaz, Federica, University of Padua, Padua, Italy
Co-author(s) - Telli, Marco, Università degli Studi di Trieste, Trieste, Italy (Presenting author)

Presentation Preference - Oral

Around 1950 BC, during the Early Bronze Age, a giant eruption of Mount Vesuvius buried a flourishing landscape of villages and fields in the plains of Campania under more than a meter of ash. Inhabitants of sites such as Nea, (the "Bronze Age Pompeii") could escape with their lives. Italian archaeological research since the 1980s has conclusively shown that the population of the Campanian plain did not fully recover for several centuries after this so-called "Avellino Event." Oddly, no one has yet wondered what might have happened to the fleeing population of Campania. The authors present preliminary results of a new 5-year research program that pursues the hypothesis that they found refuge in the coastal wetlands of southern Lazio, 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 volcanic ash itself, two more ash layers that will function as chronological markers for any evidence of an immigrant population. Using a combination of archaeological, geomorphic and paleo-ecological approaches, the Groningen/Leiden team is using these indicators to document the significant demographic, environmental and cultural impacts that are likely to result from the presence of the postulated Early Bronze Age refugee population in South Lazio. By September 2016, the project will have ended its first year and will be able to report on the results of its extensive coring campaigns and laboratory analyses of the environmental samples taken.

TH1-33 Abstract 02

Phenomena of migration on Chalcidice

Author - Danik, Olivia, University of Basel, Basel, Switzerland (Presenting author)
Co-author(s) - Chloudek, colonisation, local identities

Presentation Preference - Oral

The Chalcidice, a peninsula in Northern Greece, formed since early times a transit area and can be interpreted as the endpoint of migrations. While it was called by the Greeks of the south “The peninsula in Thrace”, the toponym “Chalcidice”, which is used from the 2nd century AD onwards for the whole peninsula, was related before only to the area of the settlement of the Chalcidians. The origin of the name is controversial, from chalco (copper), from the city Chalkis on Euboea or from the so called Χάλκη, a Greek tribe which settled in the area during the migrations of the 2nd millennium (Hdt. 7.165).

Beside the Chalcidians settled numerous populations on the mainland and the three prongs Patella, Sithonia and Aite. The return of the heroes of the Trojan War which reflect the movement of tribes is displayed in the mythical founding of the Chalcidician cities Ainea by Aeneas and Solone by Proteuselis. The rich resources from the area (timber, fertile land, mineral deposits) are central factors for the intensive colonisation in 8th/7th century BC. Settlers from Euboea, Andros, Cythern founded various apoikiai on the Chalcidice which shaped the region during the 6th/5th century BC. Cultural changes are connected through the history of the Chalcidice with the annexation to the Macedonian kingdom (349/48 BC) and when the Chalcidice became part of the Roman province of Macedonia (168 BC).

Based on this ethnic complexity the social dynamics of the microcosm of the Chalcidian peninsula should be investigated. The presentation provides on the basis of literary, epigraphical, numismatic and archaeological sources an overview of the methodical instruments which can be used to analyse the impact of new settlers on the local populations in this specific area. The aim is to analyse with a focus on the religious context the patterns of migration.
TH1-33 Abstract 05
Bone functional adaptation in the femur: a quantitative analysis in historical populations

Author - Dr. Simonit, Francesco, Monfalcone, Italy (Presenting author)
Keywords: computed tomography, migration period, moments of inertia
Presentation Preference - Oral

Bone is responsive to mechanical stimulation. Working aspects and social conditions are able to bring out significant skeletal alterations, which can be revealed in postmortem. Quantitative evaluations of the markers of occupational stress (MOS), in particular in the lower limbs, have been provided through the analysis of the cross section geometry of the diaphysis. Some historical populations of Friul Venezia Giulia (North-East Italy and Slovenia) have been studied with quantitative MOS methods. The activity patterns were already known for every group, especially about the loads to the lower limbs. Femoral cyldroids were obtained by Multidetector CT scan of midshaft femur. Average values of the cross section geometrical properties (areas and second moments of area) have been calculated to evaluate bone functional adaptation in each cylindroid. Furthermore, the results of a series of histoanatomical observations of the bones have been assessed. This latter method has no evidence in current literature and its utility is object of study by our group. The analysis of the outcomes has shown that this methodology is able to give a good discrimination of the samples in respect of the different levels of mechanical usage of the lower limbs. In particular, moments of inertia have been turned out highly sensitive. This working and cost-effective technique might represent a useful non-destructive and operator-independent method in bioarchaeology and could be useful to evaluate and compare the MOS of historical populations.

TH1-33 Abstract 06
The investigation of Early Slavic sites in North-Eastern Germany in the last 25 years. A review

Author - Dr. Schneeweiss, Jens, Institute for the History of Material Culture RAS, Saint Petersburg, Russian Federation (Presenting author)
Keywords: Historiography, Slavic archaeology, Western Slavs
Presentation Preference - Oral

The development of Slavic archaeology in Germany is closely connected to political history. Thus, with the political turn in 1990 began a new period in the archaeological investigation of the Slavic past as well. The advancement of a new generation of researchers went hand in hand with re-evaluation of old paradigms and reorganisation of research. Dendrochronological data played a major role, especially in the discussions of two crucial issues: 1) the immigration of the Slavs between the rivers Elbe and Oder and 2) the dating and historical context of the numerous Slavic ringforts. Analyses of ceramics remained another important research topic. This period of intense investigations and acute debates came to a certain end at the turn of the millennium, when some of the major ongoing archaeological works were published. Since the first decade of the 2000's the extent of Slavic archaeology in Germany is decreasing, as measured by academic research in this field. Contemporary directions in archaeology are often focusing on more theoretical approaches and provide new perspectives on well-known research issues, while rescue excavations keep on being the main source for providing new data. Nevertheless, Slavic archaeology was the topic of academic research programmes in the last decade, too.
TH1-34 Abstract 03
How clustered were clustered settlements really?
A case study on the Gátabhöyük West Mound

Author - Prof. Bahi, Peter F., University at Buffalo, Buffalo NY, United States of America (Presenting author)
Co-author(s) - Regasca, Jana, Flinders University of South Australia, Adelaide, Australia

Keywords: Architecture, Chalcolithic, Neolithic

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 Gátabhöyük 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 Gátabhöyük experienced fundamental changes in its socio-economic makeup, which are expressed in alterations of the settlement layout and organization. In the uppermost building levels of the Neolithic East Mound, the transformation 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.

TH1-34 Abstract 04
Spatial and social patterns in LBK Neolithic settlement

Author - Michalak, Katarzyna, University of Odgark, Gdynia, Poland
Co-author(s) - Polotzyński, Łukasz, University of Odgark, Odgark, Poland (Presenting author)

Keywords: built environment, community organisation, spatial organisation

This paper focusses on the results of a study aimed at examining the relationships between adjoining 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 generally 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. Podgoritsa) and Romania (e.g. Pietrela, Sultana) led to discoveries that revealed archaeological structures outside the tells that attest intensive activities and habitation. This situation brings a whole new perspective on the relationship between the nucleated tell settlements and the various activity areas from their vicinity, including the function of the tells. Future 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 its ability to model and visualize spatial trends that would be hardly noticed and time consuming if only traditional methods were used.

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

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. Valius, 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 organization in this nucleated environment. Beginning with a comparison of contemporary regional settlement types, prescribed 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 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 law, in the light of the ongoing archaeological excavations. Issued in 1276, Magnus Lagabøte law regulated both the use of space and behavioural practices, aiming to exercise control over both citizenship and populace. Here, 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): Yenke, Richard W., Ohio State University, Columbus, United States of America
Keywords: Great Hungarian Plain, Neolithic nucleation
Presentation Preference: Oral

The development of new social, economic, and political configurations frequently result in fundamental changes in settlement networks and settlement organization. In stark contrast to the previous period, the Late Neolithic archaeological record of the eastern Carpathian Basin indicates a settlement distribution of spatially discrete polities with multi-tiered settlement hierarchies surrounding therefore unprecedented, sizeable centers in the region. In this paper, we focus on tells and large Late Neolithic settlements on the Great Hungarian Plain and in the adjacent regions in order to demonstrate how the spatial analysis of built landscapes at various scales can aid our understanding of prehistoric socio-political organization. The remarkable increase in social and economic complexity during the later Neolithic brought about novel social mechanisms and institutions to assure community integrity in these large demographic, economic and political centers. We argue that considerable differences in their layout reflect a high degree of variability and resilience within similar egalitarian societies. The paper also addresses whether nucleation processes generated by exogenous causal agents resulted in a significant increase in social and economic complexity, or whether increasing social and economic complexity led to population nucleation.
Nucleated settlements in the Eneolithic of south-eastern Poland?

Author - Dr. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Kraków, Poland (Presenting author)
Co-author(s) - Dr. Kocialko, Robert, W. Szafer Institute of Botany Polish Academy of Sciences, Kraków, Poland
Co-author(s) - Kozłowska, Marta, Institute of Archaeology, Jagiellonian University, Kraków, Poland
Co-author(s) - Dr. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Kraków, Poland
Co-author(s) - Dr. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Kraków, Poland
Co-author(s) - Dr. Nowak, Marek, Institute of Archaeology, Jagiellonian University, Kraków, Poland

Abstract
Interpreting the Archaeological Record

At the beginning of the fourth millennium BC, in south-eastern Poland (historical province of Lesser Poland – Podolia Minor) appears a new archaeological unit called Funnel Beaker Culture (TRB), in the place where earlier units of the so-called Danubian Neolithic originally settled. From ca. 3600 BC, the growth of the area occupied by some settlements of this culture can be seen; this process seems to intensify with time. It is possible that such big settlements gained the status of micro-regional centers, around which the whole settlement network was organized. There are opinions that a two- or even three-tier hierarchical system of the TRB settlement was formed in that time. At the end of the fourth and in the first half of the third millennium BC, the biggest sites of the TRB reached a size of approx. 20 hectares. Because of this fact and due to the disappearance of most of the smaller sites, one can assume that a greater part of the local populations concentrated in these big settlements. Interestingly enough, such large sites are often characterized by archaeological materials of a mixed character. The so-called Beaker-Baden Assemblages in western Lesser Poland are the classical example of such correlation; i.e. they are known from phases IV and V of the site at Brzozów, the Przecław district (ca. 3100-2700 BC). A phenomenon of this kind has also been observed in Lesser Poland beyond the TRB. For example, in the large settlement in Złota, the Sandomiersz district (ca. 2900-2600 BC), the widespread coexistence of elements of the Baden culture, the Globular Amphora culture and the Corded Ware culture were recorded. It is significant that this site is actually the only settlement of the local archaeological unit called Złota culture. Other sites of this culture are cemeteries and numerous single graves. Therefore, it can be assumed that this resulted from the concentration of the whole population in one central part of the settlement area, this time of the mezo-region scale. The presentation has the objective of clarifying what kind of economic processes and social structures conditioned the emergence of big Eneolithic settlements in south-eastern Poland. Some interpretative problems associated with such settlements will be also examined, e.g. questions of “invisibility” of houses within them and their relationship to the monumental, sepulchral structures of the TRB. For this purpose, a series of complementary analyses were performed including: 1) the internal arrangement of anthropogenic structures within big settlements, 2) the internal dynamics of their development, 3) the location of such sites in terms of environmental conditions, 4) their potential activity zones, 5) the degree of human interference in the environment around them, and 6) the relationship between them and other cultural patterns such as votive deposits (differentiating local and imported materials). In case studies it also takes into account the patterns of sanctuaries located close to or within settlements, and the ways in which they were incorporated into new settlement foundations or added to existing settlements. Attempts to interpret the Eneolithic 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 discussed.
TH1-34 Abstract 16

Settlement mounds: A long-term analysis of the settlement organization in the Iron Age

Author: Prof. 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 the Pre-Roman Iron Age and the Roman Period, and the excavation of these complex village sites offer detailed analysis of the long-term social organization of rural villages in South Scandinavia. This paper will present a case study from northern Jutland, Denmark to discuss how spatial divisions within nucleated settlement mounds could regulate the socio-economic patterns and dynamics of prehistoric villages. In particular, the paper focuses on the ways that the best "addresses" of the village could maintain their dominance for several centuries, and how architecture was used to express and manipulate identity within the village.

TH1-34 Abstract 17

Structured villages from the Early Roman Iron Age in central-southern Jutland, Denmark

Author: Dollar, Scott, Søndereskov Museum, Brønd, Denmark (Presenting author)
Keywords: Early Roman Iron Age, farmssteads, 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 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 farmssteads laid out in a linear plan. The layout of individual farmssteads and the buildings within them were themselves architecturally uniform giving these villages, as a whole, a relative homogenous character. When comparing different settlements to each other, there are variations in settlement and farmsstead layout characteristics that are similar to but not identical. This may indicate that there were underlying social-cultural norms or rules in how these village communities should structure their settlements and farmssteads which were maintained by these communities over several generations. In this paper, I will present several Early Roman Iron Age settlements excavated by Søndereskov Museum in a limited geographical area of southern-central Jutland.

TH1-34 Abstract 18

What does settlement layout tell about the community?

Author: Prof. Yalman, Emine Nurcan, Cultural Awareness Foundation Istanbul, CIE-Center for International Heritage Ac, Istanbul, Turkey (Presenting author)
Keywords: ethnoarchaeology, interpretation, settlement
Presentation Preference: Oral

The layout of a settlement reflects long-term processes and mutual interactions that occur among many variables. Sometimes the factors that shape a settlement are the result of various deliberate decisions, but indirect effects also play a role in these processes. In an archaeological site, we usually excavate and observe only parts of settlements, and thus we find that many of the components are missing. Therefore, especially in prehistoric sites where there is no predictable site plan, it is difficult to interpret the community by studying the site. This paper will discuss the relationship between the structure of a community and the settlement layout and the factors that make a settlement nucleated, dispersed or agglomerated, with an ethnoarchaeological study in Central Anatolia.

TH1-34 Abstract 19

The creation of powerful places in Etruria

Author: Dr. Boddart, 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 counterweighing political genealogies that apparently contrasted with the apparent centralisation of power in the large centres. The paper will examine the resolution of this tension by matching emerging evidence from the nucleation of settlement (layout and organisation) with evidence for succession amongst political elites and their individual participants (the sequence and content of graves). The variation of this pattern at an interregional level will be added to the complex, often hetharchical, pattern of Etruria.

TH1-34 Abstract 20

Communication network structure in Latium vetus and Etruria: Two faces of the same coin?

Author: Dr. Fulminante, Francesca, University Roma Tre, Roma, Italy (Presenting author)
Co-author(s): Prof. Guidi, Alessandro, University Roma Tre, Roma, Italy
Co-author(s): Dr. Lozano, Sergio, IIMES, Tarragona, Spain
Co-author(s): Dr. Prigano, Luco, University of Barcelona, Barcelona, Spain
Co-author(s): Morer, Ignacio, University of Barcelona, Barcelona, Spain
Keywords: central Italy, communication networks, urbanism
Presentation Preference: Oral

Communication infrastructures are emerging complex structures: they are not completely random, neither are they entirely planned according to a predefined project especially when there is no unified political framework. Transportation networks can be regarded as an epiphenomenon of social interactions and interactions between societies and environments. At the same time, they influence the development of past societies (they enhance trade dynamics affecting the prosperity of a civilization) and their complexification (e.g. emergence of urbanism) is a feedback loop. By analyzing and comparing fluvial and terrestrial communication networks in Etruria and Latium vetus between the Final Bronze Age and the Archai Era with a newly developed Network approach this paper shows the similarities and differences between the two regions and contributes to explain why in the core of Rome and Latium vetus prevailed over the rival. Moreover, this analysis suggests a relationship between the hierarchical dynamics of city-states organization (and its corresponding influence on infrastructural decision-making) and the structure of terrestrial routes networks.

TH1-34 Abstract 21

The Analysis of Changes in Post-Chalcolithic Settlement at Çatalhöyük

Author: MA Hnidecki, Jadwiga, Adam Mickiewicz University, Kielce, Poland (Presenting author)
Keywords: Çatalhöyük, Hellenistic, settlement
Presentation Preference: Oral

Çatalhöyük is one of the most well-known archaeological sites. This fame is largely the result of Neolithic strata excavated there. However, this place was occupied in other periods as well. Evidence for this are registered both as on-site finds and, more importantly, remains of buildings from post-Chalcolithic periods. Because of its particular position, both at the regional scale of the Konya Plain and within Anatolia, Çatalhöyük played a specific role. Excavations at the site revealed strata and remains of settlement from Bronze Age, Phrygian, Hellenistic and Muslim Periods. Evidence for the first and the last periods were relatively scarce. However, finds and strata from the Phrygian and Hellenistic Periods indicate uninterrupted settlement from the 6th to 2nd century. Because of this, Çatalhöyük is a very good example of settlement characterized by diachronically visible social and economic complexity and cultural heterogeneity. The theme of my paper is to present the results of an analysis of late archaeological strata registered in the T3 Area. Phases of settlement presented in the first part will become a base for further interpretations. From this,
TH1-34 Abstract 22

Comparative Study of Settlement Systems in the Bronze Age and the Medieval Age

Author: Dr. Pusztané Fischl, Kára, University of Miskolc, Miskolc, Hungary (Presenting author)
Co-author(s): - Pusztai, Tamás, Herman Ottó Museum, Miskolc, Hungary

Keywords: Bronze Age, Middle Age, comparative study, settlement structure and using of space

Presentation Preference - Oral

Comparative studies on built environments between prehistoric and historic times at different geographical scales have yielded important results in various parts of the world. In particular, analyses of complementary datasets contributed to a better knowledge of similarities and differences in socio-economic developments at the local scale. However, less effort has been devoted to the matter concerning how abundant historic datasets can facilitate in understanding prehistoric settlement dynamics.

The aim of our paper is to examine settlement nucleation processes at the regional scale during two periods in Northeast Hungary. Two geographically distinctive, neighbouring regions, the Borsod Plain and the foothills of the Bükk mountains, will be included in this study, with particular focus given to the settlement patterns for the specific periods of the Bronze Age (between 2200 and 1600 BC) and the Middle Ages (14-15th centuries AD). We will explore the topography, settlement networks, space and land use, as well as house construction methods in a comparative regional and temporal framework. The economy of these two periods is based on agriculture and the exploitation of the immediate environment. The historical and cartographical sources, landmark inspections, and the well-known road-networks make possible to determine central sites contra villages in the 14-15th century AD in the micro-region. Based on the analysis of building methods, communal spaces, spatial organisation of the homes and the villages, and economic activities in these two periods, we propose a model that will determine critical factors about the Bronze Age settlement pattern (roads, central places, distribute places and activities between settlement).

TH1-34 Abstract 23

An exemplification of the socio-political make-up of the Late Bronze Age polities from Hungary

Author: - Czukor, Péter, Móra Ferenc Mázeum, Szeged, Hungary (Presenting author)

Keywords: Bronze Age Hungary, Fortified settlement, Landscape, hierarchy

Presentation Preference - Poster

In the area of the Bács-Kiskun loess table and the Barátini, 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-Rókás-Csákvár 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: - Minevičius, Karolis, Vilniaus 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. Through the history numerous societies have used this phenomenon to their advantage. Here it is being suggested that such landscape control strategies can also be observed in the later Iron Age in eastern Britain. During this period the re-emerging cremation burial monuments of social elites were used in the creation of “Landscapes of Power”. Some of them were used to visually dominate the social and political landscapes of the late Iron Age oppida. This hypothesis has been explored using GIS-based visibility analysis. By presenting case studies of Folly Lane, Lexden and Stanway it is argued that the role these burial monuments was not only to pay tribute to the deceased, but also to assist in establishing, developing and maintaining social and political power at the oppida.
BUILD WITH MUD IN THE NEOLITHIC: TECHNICAL CONSTRAINTS AND CULTURAL CHOICES

Saturday, 3 September 2016, 09:00–13:00
Faculty of History, Room 217

Author - Dr. Friesem, David, University Paul Valéry Montpellier 3, Montpellier, France (Presenting author)
Co-author(s) - Moshfegh, Miquel, Universitat Autònoma de Barcelona, Barcelona, Spain
Co-author(s) - Peinetti, Alessandro, Universita della 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 upstanding load bearing masonry, as daub to cover wooden walls, as plaster for walls or constructed floors and/ or 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-economical context and technical constraints, presenting ethnoarchaeological and archaeological examples of earthen constructions in different European contexts. First of all, the observation of modern wattle and daub in northern France allows some remarks about the relation between employed raw materials and techniques. The results of the Neolithic wattle and daub analysis from different sites in Piemonte (Northwest of Italy) stress the role played by 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 constant, but the identification of raw materials is just a first analytical level for the archaeologist. We need to make an effort and explore in depth the relationship between raw materials, technical choices and social context. In fact, each peculiar technical solution is often a solution among various other possibilities. The aim is to turn the archaeological reasoning and stress the technical variability in our approaches, to show the limits of the environmental approach in the analysis of the role played by cultural choices in material and function and enhance the role played by cultural choices in material and function of the house and society in building technology, in particular during the Neolithic.

---------------

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 sites since the Neolithic is associated understanding and reconstructing human activity which took place within archaeological mud structures. Yet, rarely archaeologists encounter mud structures preserved to similar conditions as they were during their initial habitation phase in the past. It is therefore crucial to understand the post-depositional processes involved in mud structure degradation and how they form the contemporary archaeological setting. This paper presents an ethnoarchaeological study, conducted in recently abandoned mud structures in two distinctive environmental regions: arid South Israel and temperate Northern Greece. The taphonomy of earth floors, mud brick walls, thatched roofs and microscopic activity remains was studied. Field observations and excavations were coupled with various microscopic laboratory-based analyses. The paper supplies guidelines to the identification of raw materials, occupation deposits, thatched roofs and degraded mud brick material. The results of this study presents the importance of combining macroscopic and microscopic analytical methods to distinguish between various infill sediments in order to enable better interpretation of the archaeological mud structure.

---------------

TH1-35 Abstract 03
Burning Down the House – Experimental Chalcolithic house construction and destruction by fire

Author - Johnston, Stuart, Durham University, Durham, United Kingdom (Presenting author)
Co-author(s) - Gaydarska, Bisserka, Durham University, Durham, United Kingdom
Co-author(s) - Chapman, John, Durham University, Durham, United Kingdom

Keywords: Building with mud in the Neolithic, Chalcolithic, experimental, Trypillia

Presentation Preference - Oral

During the summer of 2014, two 2/3rd sized timber-framed wattle-and-daub houses similar to those constructed on Cucuteni-Trypillia settlements, including the Trypillia mega-sites, were built in Nebelivka, Kirovograd Oblast, Ukraine by a joint British and Ukrainian team of archaeologists and craftpeople. One of the houses was deliberately destroyed by fire in May 2015 to study the process of its collapse and the potential formation of the ceramic-like burnt daub remains so often found during archaeological excavation of Cucuteni-Trypillia sites from the Balkan Chalcolithic period.

Observations of the collapse of the stone-two storey house have given new insights into the processes forming the archaeological record and cast doubt on accepted theories of the formation of the large Chalcolithic sites which are as large as 320 ha. The most surprising result concerned the very large quantities of firewood needed to burn the house completely. Coupled with experimental work carried out in the United Kingdom using the same materials, this experiment has presented evidence which challenges existing theories of house construction. By adapting test methods for the measurement of concrete, masonry, and rammed earth construction materials, the effort of heating on the material strength of daub construction material was investigated in a series of compression and shear tests. The results challenge the theory that controlled burning of walls and daub structures was used deliberately as a construction technique in Tripolye-Cucuteni houses. The Nebelivka house-building and -burning experiment is the latest in a long line of experiments that supports the notion of deliberate house-burning at the end of a house’s use-life.

---------------

TH1-35 Abstract 04
Build with earthen materials. The eneolithic site of “Ca’ Nova di Minerbio” (Bologna – Italy)

Author - PhD Boccuccio, Pasito, Soprintendenza Archeologia dell’Emilia Romagna, Bologna, Italy (Presenting author)
Co-author(s) - Gabusso, Rossana, Soprintendenza Archeologia dell’Emilia Romagna, Bologna, Italy
Co-author(s) - Guidorzi, Giulia, GEA s.r.l. Ricerca e documentazione archeologica, Parma, Italy
Co-author(s) - Mari, Monica, Soprintendenza Archeologia dell’Emilia Romagna, Bologna, Italy
Co-author(s) - Peinetti, Alessandro, UMR 5140, Archeologia dei Società Mediterranee, Montpellier, France

Keywords: building technology, eneolithic, soil micromorphology

Presentation Preference - Oral

The eneolithic settlement identified at “Ca’ Nova di Minerbio” (B05), whose excavation has not yet finished, can be dated in a Copper Age phase, during which there was a massive presence of the so-called ceramic “a squame”. The archaeological excavation shows how different construction techniques have been used to realize the identified structures: a wooden planing supported by vertical pales and completed with daub was employed to build the walls; earthen materials were used to shape floors and several fire structures as well.

We present here the rectangular “structure 1” (2 meters wide and over 6 meters long), formed of at least two closed spaces, and built with earthen materials. The employed technique is probably similar to cob, coupled with a wooden load bearing framework. The residential function of the structure 1 is still not sure, mainly for the small size of the spaces (2 rooms, sized only 2x3m).

The building shows traces of fire. A technological analysis has been carried out, using a geoarchaeological approach, in order to understand the different choices in raw material selection and the employed building techniques. After an accurate characterization of the stratigraphy on the field, several micromorphological samples has been collected on both preserved
archaeological features and layers relating to deterioration processes of built features. 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’Onorio, Cosimo, Università Sapienza, Roma, Italy (Presenting author)
Co-author(s) - Cipol, Valentina, Dipartimento di Scienze dell’Antichità, Roma, Italy
Co-author(s) - Mersi, Vittorio, Dipartimento di Scienze dell’Antichità, Roma, Italy
Co-author(s) - Danesi, Michela, Dipartimento di Scienze dell’Antichità, Roma, Italy
Co-author(s) - Forte, Vanessa, Dipartimento di Scienze dell’Antichità, Roma, Italy
Co-author(s) - Medeghir, Laura, Dipartimento di Scienze della Terra, Roma, Italy
Keywords: Bronze Age, cooking platform, plaster
Presentation Preference - Oral

The Bronze Age site of Oratino – La Rocca is located on a small terrace beside the southern slope of a rocky hill that dominates the eastern side of the high Bilancino river valley, along an important route that penetrates the inland region of central southern Italy from the Adriatic coast. The research conducted so far on the site allows us to recognize different moments of occupation mainly from 15th and 12th century B.C. During the final phase of occupation a series of six layers, characterized by the presence of hearths and cooking structures is attested. They can be related, mostly, to food preparation/treatment and consumption activities, repeated in a short lapse of time. Moreover, these activities were performed in an open area and are not linked to specific domestic structures, but probably in a collective sphere, by a restricted number of people.

Several plaster fragments, related both to the cooking platforms and with other accessory structures, were found in these layers of occupation. A broad use of mud for coatings or covers of huts and an exploitation of raw materials macroscopically different for the manufacture of small structures, as cooking platforms, is observable from the macroscopic analysis of morphometrical and technological features of archaeological materials. The application of compositional analyses, as petrographic analyses on thin sections will allowed to characterize composition and firing temperatures allowed to identify potential sourcing areas of clays that have been compared with archaeological material composition to establish the provenance of raw materials.

TH1-35 Abstract 06
Technical evolution of adobe building materials and work specialisation at Ra’s al-Hadd HD-6 (Oman)
Author - Dr. Azzur, Valentina, UMR 7041 ArScAn - Vepmo, Nanterre Cedex, France (Presenting author)
Keywords: Adobe composition, Grain size distribution, Work specialisation, Early Bronze Age, Oman
Presentation Preference - Oral

Earthen materials are introduced in Oman at the end of the 4th millennium BCE, when a series of technological evolutions mark the transition to the Early Bronze Age. The very beginning of such transformation, however, remains scarcely understood from the point of view of settlement life and activities, as the Half period is mostly represented by thousands of graves, while very few settlements are known throughout the area. The site of HD-6 has been the object of a detailed large-scale excavation, showing both the emergence of solid architecture and a diachronic evolution in adobe building materials.

Aiming at a better understanding of such evolution, chemical-mineralogical and granulometric analyses of earthen building materials related to the different occupations of HD-6 have been performed on a series of samples. The results suggest that the differences in mud-brick fabrics were a result of mixing and tempering and are not indicative of different raw material sources. Together with the technical characteristics of 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) - Bizien-Jaglin, Catherine, CefRaa, Saint-Malo, France
Co-author(s) - Watteau, Julia, INRAP, Paris, France
Co-author(s) - Gouydon, Jean-Noël, Université Nantes, Nantes, France
Keywords: architectures, mudbrick, neolithic
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 bank of a causeway camp, 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 entrance of the camp is now bordered 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 constraints, functional variability of the architectures or cultural choices will also be discussed in this paper.

TH1-35 Abstract 08
Arslantepe domestic architecture: households and technology in the Early Bronze Age
Author - Libercetti, Giovanna, Italian Expedition in Eastern Anatolia, Rome, Italy (Presenting author)
Co-author(s) - Alvaro, 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 modal developed in the second half of the IVth millennium BC. Moreover, the continuity of the archaeological excavations from 1961 onwards made it possible to examine, through the “deconstruction” of entire settlements, not just the building materials and the techniques used in the construction of houses and facilities, but also the evolution over time of each structure. The construction-evolution-abandonment-destruction cycle of a compound thus acts as a pivot in the interpretation of the huge amount of data at our disposal.

Most often, socio-cultural factors such as family structure, the position of the various members, their basic needs and social contacts play a primary role in the formation of a house. The goal of this work is to shed light on the relationship between domestic architecture and space organization, recognizing the activities inside and outside of the houses and reconstructing the daily life of a given household with regard to those bordering with it. To define the relationship between domestic architecture and organization of space we analyzed the variables that influence them over time. Hence, to unravel the social structure of the group we considered the architecture and the use of space as a single set that evolves in a horizontal (in space) and vertical (in time) way.

Our analysis is thus both structural, because it focuses on the architecture, the construction techniques and the facilities, and material, because it considers the function and location of the vegetable, 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. Popovic, Dragomir Nicolae, National History Museum of Romania, Bucharest, Romania (Presenting author)
Co-author(s) - Hatâ, C., National History Museum of Romania, Bucharest, Romania
Co-author(s) - Vlăd, F., History Museum of Ialomița County, Sibiu, Romania
Co-author(s) - Cernae, C., History Museum of Ialomița County, Sibiu, Romania
Co-author(s) - Carpi, I., History Museum of Ialomița County, Sibiu, Romania
Co-author(s) - Pârvu, V., Lower Danube Museum, Craiova, Romania
Keywords: Copper Age, Dwellings destroying or burning, Outmigrants culture
Presentation Preference - Poster

For the most part of the researchers the house is the main important social, ideological and economic entity of the society in Copper Age in S-E Europe. The materials used to built, the form, the inner space structuring, were seen like being representative
Interpreting the Archaeological Record

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 Gumezîna 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 freed.

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 Gumezîna culture in Vth mil. BC.

---

The uses of architectural mud in karstic area at Neolithic: environments techniques and cultures

Author - PhD student Di Pascale, Ambre, University Paul Valéry - Montpellier III, Montpellier, France (Presenting author)

Presentation Preference - Poster

In the Languedoc region, we distinguish two main landscape settings: plain zones and karstic environments (called Garrigue). Plains are composed of lagoon areas, layers of gravel, alluvial aquifers. Karst wetlands presents typical cavital shapes, such as sinkholes or avens. The soil there is stony and composed of numerous limestone outcrops, while the sedimentation is low (Gutherz, 1975). Both plains and karst wetlands were inhabited territories ever since the Neolithic era. However, the raw material resources that are directly available do modify the builders’ choices and highly affect the housing types. In the 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 Capoulère (Mauguio, Hérault) or Mitra (Gardons, Gard). Though, this kind of geographical determinism ought to be further qualified: Indeed, cases were seen where environment constraints have certainly been overcome by technical and cultural traditions and had a direct impact on the builders’ choices. In the Rhône plain, several dry stone houses were found. Yet these structures are established on soft substratum (Jallot, 2011). Likewise, in karst areas, the discoveries of the use of a combination of stone and mud are numerous. It is true that until recently, and particularly in karst environments, the excavation of settlements was essentially based on the recognition of remains from long-lasting materials – which often precluded mud remains. But new problematics are emerging thanks to the improvement and the adjustment of excavation methods specifically relevant for the study of mud construction materials. Bousargues (Argelliers, Hérault), located in the core of Hérault’s garrigues, contained wattle and daub vestiges directly associated to dry stone wall remains. They actually are roof elements (Chazelles, 2008). Fortbousse (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 (Jalot, 2000). On the La Vayrasère site (La Bastide-Pradine, Aveyron), unbaked clay may have been used as a binding agent between the rubble stones. And the walls have seemingly been raised with mud on the foundations (Foulon, 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.
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 Lechaion, the ancient city, and the citadel of Acrocorinth. These include mixed nature and heritage zones – Oral

TH2-02 Abstract 01
Who commits 'heritage crimes'?

Author - Prof. Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom (Presenting author)
Keywords: Austria, Civil rights, Heritage crime
Presentation Preference - Oral

Archaeologists frequently accuse others (that is, non-professionals) of committing ‘heritage crimes’. But is it a ‘heritage crime’ if no law is broken? Is it not a ‘heritage crime’ if a heritage law is broken by professional archaeologists? And would it be a ‘heritage crime’ if, say, a heritage agency were to excessively apply a heritage legislation to prevent entirely legal activities, and thus unconstitutionally restrict fundamental civil liberties? This paper examines who actually commits ‘heritage crimes’ in Austria, and whether it is truly those who archaeologists normally suspect, or whether the worst serial offenders are to be found much closer to home.

TH2-02 Abstract 02
HERITAGE CRIME: DEFINITION, DEVELOPMENT AND DUTY BASED ETHICS

Saturday, 3 September 2016, 09:00-11:00
Faculty of History, Room 329
Author - Thomas, Suzie, University of Helsinki, Helsinki, Finland (Presenting author)
Co-author(s) - Ferguson, Natasha, National Museum of Scotland, Edinburgh, United Kingdom
Keywords: Heritage Crime, Heritage Protection, Interdisciplinarity
Presentation Preference - Regular session

While crimes against heritage are no new thing, the focus within academic debate and policy development has taken some of a centre stage recently. The concept of ‘heritage crime’, or ‘cultural heritage crime’ has come to the fore in literature that draws on input from archaeologists, museologists cultural heritage managers, criminologists, law and policing specialists and others (e.g. Korsell et al 2006, Grove and Thomas 2014). Furthermore, national heritage agencies such as Historic England have prioritised ‘heritage crime’ prevention and prosecution of offenders. This is encouraging on the one hand, since it serves to raise awareness of the impact of crimes that affect cultural heritage both with the wider public and – importantly – with decision-makers. On the other hand, it is clear that the term is still very broad in its definitions, and used in a variety of contexts with which not all observers agree – sometimes revealing quite varied ethical and ontological standpoints. The risk of conflating ‘heritage crime’ with a relatively narrow range of activities, such as the looting of archaeological sites, whilst ignoring other crimes that may also usefully be referred to as ‘heritage crime’ also continues to be an issue.

In this session we invite contributors from different jurisdictions and different disciplines to debate the definition(s) of heritage crime, document how the concept has been developed and applied in different contexts, and ultimately approach this area of research and policy in a way that neither compromises the safety and integrity of cultural heritage nor presumes to define what kinds of cultural heritage matter to different communities.


TH2-01 Abstract 01
Co-author(s)

TH2-01 Abstract 04
Co-author(s)

TH2-02 Abstract 01
Co-author(s)

TH2-02 Abstract 02
Co-author(s)
The concept of heritage crime is often summed up by the image of the experienced and professional looter, motivated by financial gain and with some level of technical knowledge. While this model may apply to high profile cases of looting, this paper will concentrate on less obvious sources of harm to the historic environment, in particular that grey area where bad practice or carelessness on the part of an individual can cross the line into criminal behaviour. This paper will focus on cultural attitudes, or different cultural perceptions of harm and importance which can lead to damage being downplayed or not seen as serious on the part of the perpetrator. This paper draws on experience of working directly with members of the public who find objects, not least metal detector users, and will draw on experiences which are often not discussed or considered at policy level. Given how frequently the assumption of motive in attempted looting, arguing instead that much behaviour is driven by ‘single actors’, the finder or looter also being a collector, and the desire being to keep rather than to sell an object. Individual motivations include a complex mix of culture and preconceptions which might mean a site is damaged or an object not reported, often by individuals who act with good intentions. The cultural considerations which make an individual consider the law of little importance (while not considering themselves a criminal) will also be discussed. Running through all these issues are divergent motivations, 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.

Museum Security: How big a threat is crime?

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, embellished 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. In Western societies, this iniquitous property loss creates social alarm against the cultural heritage, while at least 16 typology of criminal enterprises are recognized in the Italian legislation. Finally, we discuss the problems arising from this lack in the law related with the difficulty of punishment the culprits.

The fight against archaeological looting in Spain.

One research and development project

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 is lacking. In the region of Andalucia, for example, the institutional response to looting seems to lack the sense of unity required. The inadequacy of many legal instruments, such as the Spanish Historical Heritage Act, other cultural legislation, and the Penal Code is very well known, as there are claims to reform this legislation. In order to achieve this and to improve the State’s response to this issue, the analysis of new data on real archaeological looting is required. Archaeological looting, as with any other illegal activity, is difficult to quantify precisely. Therefore, in order to improve the State’s response to it, the Project that we presented seeks to collect, sort and analyze data that should improve our understanding of, and effective legal response against, archaelogical plundering. 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 is lacking. In the region of Andalucia, for example, the institutional response to looting seems to lack the sense of unity required. The inadequacy of many legal instruments, such as the Spanish Historical Heritage Act, other cultural legislation, and the Penal Code is very well known, as there are claims to reform this legislation. In order to achieve this and to improve the State’s response to this issue, the analysis of new data on real archaeological looting is required. Archaeological looting, as with any other illegal activity, is difficult to quantify precisely. Therefore, in order to improve the State’s response to it, the Project that we presented seeks to collect, sort and analyze data that should improve our understanding of, and effective legal response against, archaelogical plundering. 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 is lacking. In the region of Andalucia, for example, the institutional response to looting seems to lack the sense of unity required. The inadequacy of many legal instruments, such as the Spanish Historical Heritage Act, other cultural legislation, and the Penal Code is very well known, as there are claims to reform this legislation. In order to achieve this and to improve the State’s response to this issue, the analysis of new data on real archaeological looting is required. Archaeological looting, as with any other illegal activity, is difficult to quantify precisely. Therefore, in order to improve the State’s response to it, the Project that we presented seeks to collect, sort and analyze data that should improve our understanding of, and effective legal response against, archaelogical plundering.
Different methods are being used in order to prevent and combat illegal obtainment and trade of archaeological artifacts – from explaining the significance of cultural heritage until improvement of legislative acts and introducing more severe punishment for correspondent offences. Proper implementation of any method could lead to positive results, however it is usually hard to find relatively efficient and at the same time speedy solution.

One of practical solutions of the problem has to do with enhancing awareness regarding protected archaeological artifacts and related issues because it would not be correct to assume that legislative acts already contain all the information needed for different audiences (e.g. buyers and traders of artifacts, persons who are interested in history, law enforcement officers etc.). Thus in December 2015 several cultural, law enforcement institutions and other institutions controlling turnover of cultural objects, under the guidance of Latvian Academy of Culture, started the development of “Digital catalog of Latvian archaeological artifacts at risk”.

The “Digital catalog of Latvian archaeological artifacts at risk” contains graphic and textual information regarding the most endangered national archaeological artifacts, as well as other information deemed to be useful for different audiences which could come into contact with archaeological artifacts.

The presentation will give insight into aspects of illegal obtainment of Latvian archaeological artifacts, characterize the “Digital catalog of Latvian archaeological artifacts at risk” and opportunities of its usage.
TH2-03 Abstract 02
Moesgaard Museum - considerations on an upcoming exhibition

Author: Dr. Linas Jette, Moesgaard Museum, Odense, Denmark (Presenting author)
Keywords: Display, Exhibition, Medieval
Presentation Preference - Oral

Moesgaard Museum is the among the largest and 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.

Designed by Henning Larsen Architects, the exhibitions hall has won several international rewards, lately the architizer A+ award AA.

Currently the permanent exhibits centered on the Bronze Age, Iron Age and Viking Age is open, while the permanent exhibitions of the Stone Age and the Middle Age is under preparation. The aim of this paper is to present a curators view on how we plan our upcoming addition to the permanent exhibition, this time centered around the medieval period. The paper will focus on the interaction between hall and display, including reflections on scale and purpose, process and selection of topic and modes of display as a way of engaging both the community and our international visitors.

TH2-03 Abstract 03
Object-based (Distance) Learning: Local and Global Educational Enrichment from Corinth Excavations

Author: Petrole, Katherine, American School of Classical Studies at Athens, Ancient Corinth, Greece (Presenting author)
Keywords: community engagement, museum, outreach
Presentation Preference - Oral

Over the last 120 years, research at Corinth Excavations in Ancient Corinth, Greece, conducted by the American School of Classical Studies at Athens (ASCAS), has produced a wealth of academic publications. Part of the mission of the ASCSA, however, in addition to producing research, is to disseminate the results to wider audiences. Just nine years ago, Corinth Excavations began facilitating occasional educational programs in the museum and on the site of Ancient Corinth for Greek schoolchildren and teachers on a variety of subjects. For example, a program held at the Asklepieion included a dramatic interpretation of Epidavrid healing inscriptions.

Corinth Excavations now has a dedicated staff member for educational outreach thanks to the generous support of the Steinmetz Family Foundation Fellowship; the Museum Fellow is creating enriching lesson plans for Greek and American curricula. In this way, Corinth Excavations can reach learners locally and globally to tell stories about the past. The lesson plans are designed to fit American learning standards for the sixth grade, when students spend one year learning about the entire Eastern Hemisphere; however, suggestions for educators are provided in the lessons for adaptations for younger or older learners.

The lesson plans are based on objects from Corinth Excavations representing periods from antiquity to the present. Themes include water management, healing practices, mysterious rituals, analyzing evidence from the Classical period, cultural achievements of the Roman Empire, pottery designs and styles of the Byzantine Empire, the development of Christianity, interpreting Frankish skeletal material, and taking a digital field trip.

The purpose of the outreach effort is twofold: to create communication between archaeologists and historians who produce new and exciting results with the general public; and to inspire outside audiences to continue to learn about the legacy of Ancient Greece, Roman and Medieval culture. There have been successes and failures in the process of creating educational outreach as it is something new, innovative, and unparalleled for an excavation in Greece. But the successes have shown the power of objects: they tell stories, they inspire curiosity, and they extend learning beyond the classroom and into museum and archaeological site. Corinth Excavations is offering educators something they literally cannot get anywhere else: access to hundreds of thousands of images, videos, notebooks, drawings, plans, maps, artifacts, publications – that tell the story of our collective past.

In order to highlight over a century of research, the uniting message of our educational enrichment efforts is that Corinth was and continues to be a crossroads of cultural, religious, and economic activities for thousands of years. Outreach in Ancient Corinth aims to communicate these interactions among peoples through time and share the legacy of Ancient Greek, Roman and Medieval culture with future generations. In the mean time, it is a project that is changing the role of archaeological excavations and museums.

TH2-03 Abstract 04
The Govan Stones: Urban Renewal and Early Medieval Sculpture

Author: Prof. Driscoll, Stephen, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Church, Community, Sculpture, Telling Stories
Presentation Preference - Oral

On the south bank of the River Clyde stands the church of St Constantine, a place of worship for approximately 1500 years. It is the oldest church in Glasgow and one of the oldest in Scotland. In archaeological terms it is most remarkable for a large collection of sculpture, dating from the 10th and 11th centuries, when Govan was the seat of the kings of Strathclyde. Subsequently during the Industrial era, Govan became famous for ship building and at the end of the 19th century was the leading centre for marine engineering in the world. Although Govan has enjoyed two periods of greatness, for nearly a century it has experienced a prolonged economic decline and accompanying social disintegration.

Perhaps the clearest sign of social decay has been the collapse in church attendance and associated social activities. Formerly the church provided a community focus that extended far beyond the Sunday service. As a consequence of this decline Govan Old Church is no longer the main parish church and has recently been taken over by a charitable trust. The main aim of the trust is to use the historical and archaeological assets of the church as a tool to promote urban regeneration. This paper will discuss the steps already taken to utilise Govan’s historical resources (http://www.thegovanstones.org.uk/) and the plans for building a cultural centre which will provide a new social hub for the community. Special emphasis will be placed on the constructive role of archaeology in stimulating community interests and responding to government agendas of sustainability and economic growth.

TH2-03 Abstract 05
If the bomb falls

Author: Mag. art Paulsen, Charlotte Abbildgaard, Museum Skanderborg, Skanderborg, Denmark (Presenting author)
Keywords: Community, Hands-on, Interaction
Presentation Preference - Oral

How do you communicate the work of an underground Cold War Command Centre? During The Cold War Civil Defense Forces in Denmark had placed a number of Command Centre’s throughout the country to be prepared. The local community had monthly drills, training for the worst case scenario. Command Centre Skanderborg was placed in a bunker build by the German Luftwaffe during WW2 as part of their headquarters in Skanderborg. The bunker was rebuilt in 1963 and in function until 1993.

The Cold War was a time of great fear throughout the world. For today’s young people, that can be a bit hard to imagine and understand.

In the process of deciding how to communicate the bunker and it’s function Museum Skanderborg teamed up with the local high school. Through discussion panel s and an innovation project that involved a gamification scientist as well as the museum curators, the work with the students led to the development of an educational roleplay in the Command Centre together with professional roleplay instructors and teachers. The aim of the roleplay is to make the youngsters feel a bit of the panic for the Big Bomb. Several classes have already tested the game. This paper will put forward the concept as an inspiration for others and seek to evaluate on the weaknesses and strengths in the project so far.

TH2-03 Abstract 06
"Know thyself" or visitor experiences in open-air museums (case study of Belarus and Lithuania)

Author: Charapaya, Nadezda, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: communication, open-air museums, visitor experiences
Presentation Preference - Oral

Archeological open-air museums generate participatory multi-dimensional environment, atmosphere of illusionary past and immersive folk culture. The special design and variety of interpretation methods enable visitors to dive in history and experience cultural diversity by means of tangible and intangible heritage, dialogue and celebration; to rediscover their national and cultural identity and, in other words, get to “know thyself”, as Skansen’s motto states. The paper will analyze the augmented space and dynamic communication of open-air museums as the complex environment for creating memorable and meaningful visitor experiences. The geographical scope of the research will include the open-air museums in Belarus and Lithuania.
TH2-03 Abstract 07
Future Perspectives of Greek Archaeological Museums.
The Archaeological Museum of Olympia

Author - PhD Vigli, Maria, Tel of Western Greece, Athens, Greece (Presenting author)
Co-authors - Koutsios, Aislami, Tel of Western Greece, Pirgos, Greece
Keywords: Archaeological Museum of Olympia, Greece, future perspectives, museological practices
Presentation Preference - Oral

The Greek archaeological museums of the 19th century, as well as their European counterparts are related to the development of the national states, constituting one of the key institutions as places where the nation could “weave” its history and cultivate the achieved identity. Furthermore, the archaeological museum in the last decades of the 19th and early 20th century becomes public, giving the possibility of access to others than the managers and collectors. Thus, the current museum concept is defined as a creation of modernism as this was shaped during the Renaissance and survives until, approximately, the mid-20th century. On the other hand, along with trying to establish through collections and exhibitions an empirically documented truth, the museum seeks to elevate the past to an introduction of the present and the future. This intention is characterized by a holistic approach that will not examine the archaeological museum individually as a tool of the upper class, or an educational mechanism, a storage of precious artefacts, a space of national pride and individually, a field of developing a specific professional and scientific activity, exhibiting technique or local development lever. Instead, it will endeavor to highlight the field where all the above engage and collaborate through reciprocal support or even conflict. The future museum will be an integral part of a uniform process that starts by identifying an archaeological trail and ends in the exhibit cabinet or in storage. In this context, archaeologists should meet with a number of other specialists-all in distinctive roles-in order to promote the composite knowledge of the past. This process should be guided by professional ethics and respect. Our proposal concerns the application of such a project in one of the most important museums in the world, the Museum of Olympia, as a vehicle of sophisticated museological practices that will contribute to the creation of the future museum.

TH2-03 Abstract 08
Open up again: a local museum by the lake and the strategies to connect it back to its community

Author - Dr. Cella, Elisa, Museo Civico Etrusco Romano di Trevignano Romano, Trevignano Romano, Italy (Presenting author)
Keywords: Community, Diversity, Local Museum
Presentation Preference - Oral

More than others, local museums are deeply connected both to their territories and their communities: their role in education and the high potential in reflecting and influencing cultural practices is a well known issue, offering guidelines for any strategy aiming at turning any museum into an example or a good practice. It has been recently said that Museums should be “involved not simply in presenting or preserving but opening up a space for dialogue – about art, about culture, about humanity” (T. Golden 2016). In other words, the challenge seems to be one related to the creation of a new asset, mainly based on the social and educational role of these institutions.

For those archaeological Italian museums traditionally created and intended as defences of their collections, the need of a Copernican revolution, the shift from a point of view mainly focused on the multiple ways of fruition, rather than on those of mere protection, seems to be the only successful guideline today. If, on one hand, this seems to be the main issue of recent Cultural Heritage management of the European Union level, on the other hand the pattern seems to be less consistent at a regional and local level, where different political, economic and cultural strategies create a multifaceted and changeable reality. Is it possible to turn this element of weakness into a strength, considering differences as the chance for plural narrations?

The management of the Etruscan and Roman Museum of Trevignano Romano, located by the tourist shore of the Bracciano lake, North of Rome, recently changed its strategic assets in the name of diversity and inclusion. That is a challenge for a local museum that just a few years ago has been defined as a ‘silent’ institution, not in contact with its people and its territory. It is possible to change this situation, turning it into one of the voices of its community, and at the same time into a bridge, the trigger for a wider inclusive and equal process to access the local archaeological heritage? Trevignano Romano has 10% of its population made of Eastern Europe citizens, and is the birthplace of the Abbot Tommaso Silvestri, the founder in the late 18th century of the first Italian school for the deaf: inclusion and accessibility seem to be the natural keywords of its mission. The paper aims at presenting and analysing the needs, the goals, the risks, the achievements and the failures of the renovation project of a local museum with the ambition of playing an active role at both social and individual level, intending the process of audience engagement not just as a mere economic tool.

TH2-03 Abstract 09
Curation of the Vilnius Museum of Antiquities

Author - PhD McReynolds, Louise, University of North Carolina, Chapel Hill, USA (Presenting author)
Keywords: archaeological museum, national museum, Russia
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 museums played in the challenge between nationalism and imperialism in the nineteenth-century Russian empire. Debates about display and curation were central to the rise of archaeology in that epoch, and in Russia, they were also closely associated with the fifteen archaeological congresses, meeting every three years from 1869, were the singular academic and/or professional conferences held in Tsarist Russia; the 9th was held in Vilnius in 1933.

In the 1840s, when archaeology was first beginning to blossom, 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 Logiy, in present-day Belorussia. The Russian word for what we call “amateurs” translates literally as “lovers,” and this better captures the sense of this first generation of essentially noblemen who combined a passion for archaeology with similar fascination with ethnography and history. In 1842 the Tyszkiewich brothers opened three rooms in one of their palazzos into the first local Museum of Antiquities, more than a curiosity shop. It was visited by thousands of upper-class people in its first year. In 1856, in concert with the anticipated liberalizing policies of new Tsar Alexander II, the collection was transferred to more space in the Library of the former University, which had been closed in 1832 following the Polish rebellion. Unfortunately for them, the second Polish rebellion of 1863 prompted the closing of this Commission, thereafter designated as only intended to be “temporary” and the redistribution of much of the museum to others, primarily Moscow’s Rumiantsev Museum, a critical repository of historical artifacts.

One of the first orders of business following the rebellion was to re-curate the museum. Count M. N. Muraev, who would receive an honorific “Vilnianski” added to his surname in recognition of the fervor with which he instigated the de-Polonization of the Northwestern Region (Lithuania and Belarus) organized a commission for the inspection of the objects on display in the Museum of Antiquities. The clash between Tyszkiewich and the Commission, and the subsequent congress, illustrate the use of archaeological artifacts to dispute an identity during the Age of Empire.

TH2-03 Abstract 10
The Euphronios Krater: from the Illegal Art Market to the Rebirth of a Museum

Author - PhD Pica, Valeria, University of Malta, Roma, Italy (Presenting author)
Keywords: Cultural Identity, Cultural Policy, Etruscan Pottery
Presentation Preference - Oral

A forty years long journey allowed the return to the place of origin of an admirable work, which has reinvigorated the fortunes of a museum and of a local community. The Euphronios or Sarcodon krater is a red-figure calyx krater dated back to the VI BC, which was illegally excavated in the 1970s in the area of Cerveteri (Italy). The latter was one of the city-states in the Etruscan League, where the VII-IV BC the population was around 35,000 people. The city is pretty well known thanks to the number of Etruscan necropolises deploring along its boundaries. Nowadays the most famous tourist attraction in the area is the Banditaccia necropolis, declared UNESCO World Heritage Site in 2004.

In the past centuries, many works were dug out from the necropolises and then quite easily sold on the international art market: what happened was regularly repeated to the Euphronios krater, purchased by the Metropolitan Museum of Art for the substantial price of one million dollars in 1971 after adventurous vicissitudes that led the artwork from Cerveteri to Zurich and then to New York. A legal controversy invested the MET and more recently it restored the ownership of the krater to Italy in 2006, together with twenty other objects that returned back to their original sites. Among these objects, the Euphronios krater and another piece made by the same terracotta painter that demonstrates the way he was used to work and the different taste and technique in a period of twenty-thirty years.

In 2008 the Euphronios works were displayed in the temporary exhibition Hosto: Recovered Masterpieces at the National Museum of Villa Giulia in Rome and they were supposed to enter the permanent collection.

The location of the krater and the krater in Cerveteri is the result of collaboration between the City of Cerveteri, the Southern Lazio and Etruscan Archaeology Superintendency and the Lazio Region. On the tenth anniversary of the UNESCO recognition of the Etruscan necropolises of Banditaccia (2014), the krater has been transferred for a month at the Centre National, and thanks to a significant increase in visitors, the exhibition has been extended until December of that year. On December 18th 2014, to close the decade of celebrations, the Superintendent accepted the request of the City of exposing the kylix also close to the krater, after the successful exhibition of the krater in Cerveteri the museum has welcomed more than 10,000 visitors (more than it does in a year) and, thanks to the intervention of Dario Franceschini, Minister of Cultural Heritage, who identified the “Cerveteri case” as a good practice in his idea of dispersed museum at the centre of cultural heritage reform, it was decided to permanently transfer the two masterpieces in the collections.

This paper aims to underline how the cooperation between local and national institutions may represent a policy to pursue in the perspective of a local community cultural identity and rebirth.
In 2013 “Dragan samihalé”, a magazine for decision makers in the public sector wrote: “The trend is hopeless. 19 Swedish municipalities have shrunk every year for two decades. Twelve of them have may died out before the turn of the century. In 2070, Ljusnaraborg and Strömstad will be the first in line for the precipice, if the population continues to decline at the same rate as now.” Imagine bearing a citizen in Kopparberg, the small town in the municipality of Ljusnaraborg, and waking up to that announcement! Well, you probably wasn’t surprised, but still. My municipality has a sentence; a death sentence and a given date: when it’s all good by, time to pack the things and leave.

Several of the inhabitants in Kopparberg wasn’t asked at all when national media called out the message. And the inhabitants in the other small municipalities in the former so proud mining district of Sweden is not asked for any opinion either. Meanwhile, a group of eleven artists that bought an old mine in the area thought “Hey, what about the locals, asylum seekers, art, music, heritage and the future of this place?” And suddenly, one year afterwards I was standing on an ice cold day with a director, journalist, artist, baker, a 23 year old dentist from Syria, an old man from Iraq, the local drunk, councilor and a bunch of others, making an archaeological excavation of a public pinboard, with the overall theme: excavating the future of Kopparberg.

In this presentation I will give two examples of empowering the local community using heritage. The first example above is in great contrast to the other, where local school children excavates an old cottage where the ferryman once lived. But both are examples of how heritage and archaeology can be used to revive history and let the locals be proud of their cultural heritage, whether or not they have lived there for generations or came there last week.

Archaeological research most often includes the influx of experts into a new community where research is conducted, inevitably leading to new relations. In 2014 and 2015, a similar situation occurred in Croatian Baranja, where archaeologists worked on the future A5 motorway, discovering new and reviving old data on the region's cultural heritage.

The region under study has been under tremendous amounts of financial, political and social stress, especially in the last 20-30 years due to its position next to two Croatian borders and its role in the Croatian War on Independence. Deprivation of all possible sorts can, to this day, be noted in the area where jobs are sparse, where most entrepreneurs get swallowed up by larger companies and where culture is seen as an irrelevant luxury, no longer enjoyed even by the ones who strive to produce it.

From an archaeological point of view, Baranja is an extremely rich and valuable region. However, as with all other aspects of society, certain well-known and systematically excavated sites always cast a shadow on the smaller ones which rarely get a chance to be properly excavated and/or presented to the public.

The aim of this contribution is to show how all of this can be changed by applying the ‘where there’s a will, there’s a way’ approach in a situation where the local community never saw culture as something important and potentially lucrative, both financially and socially. The aim of Drachov said (JASA) is an example of how archaeologists employed by the Archaeological museum in Zagreb helped reanimate culture-related activities in the community which, just like the team of experts, realized that this site is a jewel in the region, and that their region is an archaeological jewel in the entire country. We will focus on the many months of work conducted by about locals and about 20 archaeologists, and the impact the latter made by raising awareness on the area’s rich cultural heritage, along with financial benefits experienced by everyone included in this complex process. We will show how the archaeologists blended into the local community by supporting the local art and music scene, and by participating in public events such as bean cooking contests.

Finally, we will highlight the fact that, if experts take time to raise awareness about cultural heritage in the local community and support the existing tourist offer, cultural tourism can be reanimated, or even created, to the mutual benefit of experts in the field and local stakeholders, thereby creating conditions for presenting and promoting research to the public, as well as for presenting the local heritage to archaeologists, ultimately leading to more research and prosperity on a plethora of levels. In the case of JASA, the ongoing communication resulted in a project conducted by both archaeologists and local stakeholders - the first archaeological exhibition ever held in Beli Manastir, a concise cross-section of the knowledge procured in the excavations, and a milestone from which we can move forward into future collaboration.

**Keywords:** Community archaeology, Empowerment, Heritage as heritage

**Co-author(s):**
- Kukla, Ana, Zagreb, Croatia
- Mladen, Marin, Zagreb, Croatia

**Keywords:** Deposition and the Historic Environment

**Presentation Preference:** Oral

**Archaeological research in England**

**Author:** Miles, Daniel, Historic England, Swindon, United Kingdom (Presenting author)

**Keywords:** Community group, Research, valuing

**Presentation Preference:** Oral

England has a long tradition of non-professional archaeological investigation, in particular through membership of local or county archaeological societies. The earliest county societies were founded in the mid-19th century and many still are actively investigating and researching their local archaeology. This research is often driven by local and personal interests, with the results disseminated within the group and through their own publications. This is a very different picture to the professional sector, which is guided by academic interests and the requirements of the planning system – to evaluate the potential of archaeological resources and to mitigate against their loss. Professional research is coordinated and managed through different research resources, including Historic Environment Records and Research Frameworks, which provide the evidence base and research focus within which investigations can be framed. These have been developed collaboratively by partnerships of commercial, local authority and academic archaeologists, with one main group of researchers, the community and volunteer groups missing. It could be said therefore that in England we accept, support and even promote archaeological investigation by the voluntary sector, but place less value on the outcomes and results of their work - i.e. not enough to include their work in our heritage management systems or invite them to be actively involved in the development of our research frameworks.

My contribution to the round table discussion will be to look into and discuss the issues in more detail with particular reference to a recent project, funded by Historic England (the UK government’s adviser on heritage in England, which aims to address this issue by examining and evaluating the value or potential research value of volunteer investigations for enhancing Historic Environment Records and Research Frameworks. The project included a national survey of heritage voluntary organisations and examined examples of community group research outputs. It has provided us with a clear indication of the
amount of research being undertaken by the voluntary sector, an assessment of its research potential and benefit for inclusion into our research resources and a direction for promoting the active participation and involvement of community groups in the development of professional research resources.

TH2-04 Abstract 02
The impact of local archaeology societies in England

Author - Roberts, Hayley, Bournemouth University, Poole, United Kingdom (Presenting author)
Keywords: Amatuer Archaeology, Community Archaeology, Professional Archaeology
Presentation Preference - Oral

Non-professional archaeology was an integral component in the development of the archaeological profession in England. As the profession developed it distanced itself from the amateur sector and, on occasion, the relationship became fractious. However, now both sides have matured and harmony is reining more widely, although the relationship is still complex. Local archaeology societies played, and still play, a key role in the historic mediation process, bringing these two parties back together, but what are local archaeology societies, what do they do and why do they do it? They are rarely discussed or credited in archaeological literature but in order to bring total harmony it will be crucial to understand them and the impact that they have. Local archaeology societies in England range from county societies, who produce journals and manage museums to small ‘hobby’ groups with a primary interest in excavation and from metal detector clubs to groups that focus purely on archival research. Often they use elements of professional practice but sometimes components are missing. This can have a crucial effect on their impact. Using case studies gathered from the perspective of both amateurs and professionals in the south of England, this presentation will discuss archaeological discoveries made by and the research processes used by local archaeology societies. It will also consider the impact of their communication within the profession as well as the wider public.

This will demonstrate that not only do local archaeology societies have significant impact on archaeological understanding and on the archaeological profession but that they have even greater potential. By bringing clarity of understanding about local societies, this presentation will also demonstrate that the distinction between amateur and professional archaeologists is a little blurred in ways that professional archaeologists might not expect.

TH2-04 Abstract 03
Issues of metal detecting in Finland

Author - Dr. Wassman, Anna, University of Helsinki, University of Helsinki, Finland (Presenting author)
Keywords: communication, metal detecting, public engagement
Presentation Preference - Oral

In Finland, the use of a metal detector is usually allowed without a separate permit, even though it is regulated by such laws as the Antiquities Act (1963). The Antiquities Act protects ancient monuments, including a protected area around monuments of 2 meters. According to this same Act, finds over 100 years must be delivered immediately to the National Board of Antiquities (NBA) or a Provincial Museum. The finder must also provide information regarding the location of the find. The NBA cannot decide if they want to redeem the find to their collections or not. Even though there have been reports in the media of “nighthawking” in Finland I argue that most hobbyists want to detect responsibly. However, it’s clear that the legislation is out of date. The law and regulations are also difficult to interpret, creating frustration on both sides.

At the Espoo City Museum the growing interest in archaeology and metal detecting was understood in the beginning of 2012 when a series of projects were launched in order to engage the public in learning more about cultural heritage. During 2012-2015 metal detectorists recovered a range of finds from the Iron Age and the medieval period and some of them are displayed in the Museum’s permanent exhibition. Many of these finds have a significant scientific value and have after been recovered and published.

As professional archaeologists we need to communicate better with the public and the media. A lot of media reports still focus only on the value of the finds and not on the cultural historical significance. A good example of this is a medieval gold ring found by a detectorist in Espoo in autumn 2013. After recovery it received international media coverage, resulting in a debate over redemptions fees. Many finders also report their finds to the media themselves. Thus the archaeological community needs to be more involved with the media and take more responsibility.

It’s also important to note that engaging with the public needs to go both ways and that it is an ongoing process. Mutual trust is a key issue when collaborating with different groups and individuals, especially metal detectorists.

TH2-04 Abstract 04
Aspects of metal detecting in Finland

Author - Niikkanen, Marianna, National Board of Antiquities, Helsinki, Finland (Presenting author)
Co-author(s) - Kullinen, Jutta, National Board of Antiquities, Helsinki, Finland
Keywords: Finland, metal detecting, stray finds
Presentation Preference - Oral

Metal detecting has become a popular hobby in Finland. No permission is needed to use a detector, and there is a lot of material easily available on the Web that can lead to new archaeological findings. The amount of archaeological artefacts and sites found every year by detectorists is significant, and now also foreign “treasure hunters” have shown interest in detecting in Finland. The presentation deals with metal detecting against the Finnish legal background, the questions of heritage management and depositing stray finds in archaeological collections as well as the challenges in communication between the authorities and detectorists.

TH2-04 Abstract 05
Stone shaft-hole axes: between professional and non-professional archeology

Author - Linevich, Siarhei, Institute of history NAS Belarus, Minsk, Belarus, Republic of (Presenting author)
Keywords: archaeological collections, museum, stone shaft-hole axes
Presentation Preference - Oral

The role of non-professional involvement in the development of archeology and the importance of public participation in the creation of the data base for archaeological researches will be considered by the example of such category of archaeological finds as a stone shaft-hole axes. The study is based on the history of creation collections and researching of stone shaft-hole axes at the territory of Belarus.

The first collections of the stone drilled artifacts in Belarus dates back to the middle of the XVI century. But they had a little connection with scientific approach and they explain the influence of the ideas of the Renaissance era to the magnate class. The main way of replenishment of these collections was redemption or confiscation. Another relationships with stone shaft-hole axes formed in the rural environment. Peasants have seen their pragmatic and magic sense in this category of artifacts. Since the XVIII-XX centuries ethnographers noted the existence of different popular legends about the origin of the stone axes, described their used by peasants.

There was a surge of interest in archaeological finds in the 19th century and as a result an increase of a private archaeological collections in Belarus. It should be noted that the archaeological studies were rare and sporadic. But the number of stone shaft-hole axes in private collections was more than 2 thousands.

After the fall of the Russian Empire and the creation of the USSR the system of museums was founded. The main function of them was accumulation of all sorts of antiquities. The private collections became the basis of the museum collections of stone axes was. The additional source of replenishment of museum collections was the work of professional archaeologists. Simultaneous the private collections continue to exist.

After the WW2 the additional source of accumulation of archaeological artifacts became school museums. Today, the school museum sometimes has better collection of stone axes then the state than the public museums.

TH2-04 Abstract 06
Blunt instruments or intelligent solutions?

Author - Moeller, Katharina, Bangor University, Bangor, United Kingdom (Presenting author)
Co-author(s) - Karl, Raimund, Prifysgol Bangor University, Bangor, United Kingdom
Keywords: heritage laws, metal detecting
Presentation Preference - Oral

Compared to the UK the heritage laws in Germany and Austria are much more restrictive when it comes to metal detecting. But are these stricter laws really an effective deterrent? If so, the number of metal detectorists should be higher in the UK than it is in Austria and Germany. However, due to the stricter laws, the actual number of metal detectorists in the latter two countries is unknown.

To compare numbers of metal detectorists in the countries mentioned above, this case study looks at metal detecting online fora, especially their membership numbers. These indicate that there are more metal detectorists in Germany than there are in the UK. This suggests that laws alone do not prevent people from looking for archaeological material. Laws do, however, influence other patterns of behaviour, particularly the reporting of finds to the authorities by their finders. Stricter laws do not seem to deter metal detecting, they deter finds reporting.
Thus, to ensure that as much archaeological information as possible is preserved or recovered and recorded properly by its finders, another solution must be found. Allowing for more public participation in archaeology in Austria and Germany might be one way to achieve this goal.

TH2-04 Abstract 07
Ignored and forgotten: avocational archaeologists and the lithic assemblages from fieldwalking

Author - Dr. Wright, Dene, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: Avocational archaeologists, fieldwalking, lithic assemblages
Presentation Preference - Oral

Fieldwalking and the surface collection of lithic material on the Arryshire and Wigtownshire coasts of Scotland has a long tradition dating back to the 1800s. This was in no small part due to the efforts of a number avocational archaeologists, and their participation with Arryshire and Wigtownshire Archaeological Association founded in 1877. The 1970s witnessed the last in this line of avocational archaeologists who undertook such tasks in Arryshire and Wigtownshire. There was no tradition of fieldwalking in South Lanarkshire, inland and adjacent to East Arryshire. 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 Arryshire, 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 - Tsachi, 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 non-professional language. These information could help to understand better archaeological work to the non-professionals and to involve more people in science. In my poster I want to present some examples of these communities.

TH2-06 Abstract 01
The road to a working party is paved with good intentions

Author - Dr. Waugh, Karen, Vestigia BV Archeologie & Cultuurhistorie, Amersfoort, Netherlands (Presenting author)
Co-author(s) - Dr. Hey, Gill, Oxford Archaeology, Oxford, United Kingdom
Presentation Preference - Round table

A draft proposal for setting up a working party to examine specific EIA issues was published in TEA 46. Following on from there, we would like to introduce the Round Table by presenting the progress made so far in defining aims and objectives for the working party. More importantly, the introduction should provide a structure for discussion and debate within the Round Table. It is hoped that the session will lead to a general consensus on a working 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 ‘translated’ into English law, how it is implemented in practice in England, and how this has affected the professional practice of archaeology there.

The paper will also consider whether there is scope for future improvements of the Directive itself, or of the ways in which it is implemented.

It is hoped that this paper, 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.
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 HIPs are frequently requested by the UNESCO World Heritage Committee. At the other end of the scale, national systems (for example in the English National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG)) often now ask for assessments of impact on heritage for many cases which will never require EIA. They can recommend use of existing HIA guidelines or request simpler heritage statements.

The de facto existence of two parallel systems which can apply to the same site can be counterproductive to good decision-taking as well as wasteful of resources. There is currently considerable research interest in Europe on the use and effectiveness of HIA. One clear avenue for research is the interaction between HIA and EIA and 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.

Our understanding of English cultural heritage is significantly influenced by the Environmental Impact Directive and EIA requirements; for example, the undertaking of archaeological fieldwork and the spatial distribution of the resultant archaeological record is strongly determined by projects which are subject to EIA. This can be illustrated through the comparative examination of data held within Historic England’s Excavation Index, the Archaeological Investigations Project dataset and the Grey Literature record is strongly determined by projects which are subject to EIA. This can be illustrated through the comparative examination of data held within Historic England’s Excavation Index, the Archaeological Investigations Project dataset and the Grey Literature database held by the Archaeology Data Service in York.

Interestingly, EIA regulations also frame archaeological investigative work that is not undertaken under the direct influence of the Environmental Impact Directive, such as cultural heritage investigation and archaeological fieldwork undertaken within the context of a DCO application or a Hybrid Bill. Although these types of planning applications and regulations fall outside of the Environmental Impact Directive, they are heavily indebted to the process of EIA which shapes the resultant approach, project design and method.

Through a discussion of projects subject to the Environmental Impact Directive as well as projects undertaken within the context of a DCO application or Hybrid Bill, this paper intends to explore the influence of EIA requirements on spatial planning and cultural heritage in England and how they shape our understanding of the English archaeological record.
25 YEARS LATER: CHANGES AND CONJUNCTURES IN PREVENTIVE (DEVELOPMENT LED) ARCHAEOLOGY IN FORMER ‘EASTERN’ EUROPE

TH2-07 Abstract 01

Introduction. From rescue to preventive archaeology: 25 years of difficult journeys

Author - Prof. Novaković, Předrag, University of Ljubljana, Faculty of Arts, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Horác, Milan, VIA MAGNA Ltd., Vršac, Serbia

Keywords: Eastern Europe, preventive archaeology, rescue archaeology

Presentation Preference - Oral

Until 1990s and the abolishment of socialist/communist regimes in ‘eastern’ European countries, archaeological service (institutions and practice) in protection of cultural heritage was fully in the hands of state bodies which had to plan funds in their state budgets for performing their duties. These funds were normally coming from taxes, and then redistributed. The principle polluter-payer was rare, only occasionally used, and normally not aimed at complete cover of the costs of archaeological protection. There were almost no private funds used for performing their duties on newly discovered heritage, and not in the initial phases of spatial planning and development. The reasons for this were many.

The political changes in public life 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.

The political and economic changes after 1989 had very different consequences in different countries in the field of preventive archaeology, and even the countries which shared similar or even equal systems of organization and practice of heritage protection (e.g. in former Yugoslavia or in the USSR) soon developed quite different systems which ranged from very ‘liberal’ to very ‘conservative’. In this respect it is interesting to note that ‘liberal’ systems of heritage protection which adopted more concepts of preventive archaeology and coupled them with the emergence of private 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 archaeology associated with heritage and development of private market of heritage services – are not necessarily directly correlated (e.g. case of preventive archaeology in France), but this correlation seems higher in the case of former ‘eastern’ countries. However, looking at different experiences in the last two decades, another set of questions should be posed here – who, in what status, and to which degree, participates in the market of preventive archaeology as private entrepreneur? Do we speak of real entrepreneurs or ‘disguised’ public institutions? Is ‘open’ participation of public actors (e.g. model of INRAP 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 02

Archaeological heritage management in the heart of Europe.
Legislation and institutional basis in Slovakia

Author - Dr. Michalik, Tomas, Cultural Heritage Consulting Ltd. / Slovak Association of Archaeologists, Trncin, Slovakia (Presenting author)

Keywords: archaeological heritage, law, Slovakia

Presentation Preference - Oral

There is no doubt that Slovak republic belongs to examples of dynamic legal, economic and social changes since the Velvet Revolution in 1989, which were reflected also in the archaeology and archaeological heritage management. Formerly fully governed, managed and covered by the state, this field became much more heterogeneous during last decades. Although necessary changes were needed and therefore expected, their quickness caused a lot of important consequences. From the point of view of legislation, all important laws were adopted after 2000, although there were previous laws, of course. First of all, adopting of new Monuments and Historic Sites Act N: 49/2002 Coll. is definitely the most relevant change. Under this act, major responsibility for the archaeology was transferred from Archaeological Institute of Slovak Academy of Sciences (which is in fact scientific body, without decisive competences) to state administration. Monuments Board of the Slovak Republic was established, with its 5 regional branches, which are most relevant actors in the archaeological heritage management, due to their strong position and deep and detailed competences. Regional Monuments Boards are the first-contact institutions not only for field archaeologists, but also for landowners, developers or other persons conducting activities with a potential to influence archaeological heritage. They decide on necessity of conducting of research, its conditions and time frame as well as on offences or other illegal activities. Monitoring and supervision belong to their competences, too.

This hierarchy of state administration is covered by the central state body for cultural heritage – the Ministry of Culture of the Slovak Republic, which has 2 important advisory bodies: Archaeological Council (where all sectors from Slovak archaeology are represented) and Licence Commission (preparing opinions for the Ministry in the field of research licences).

The Monuments and Historic Sites Act also deals with archaeological cultural monuments, protection of archaeological sites in spatial decision-making process, individual finds and other relevant archaeological issues. Legal regime of archaeological finds in museums is regulated in Museum Act N: 206/2009 Coll. Maltova Convention was ratified by the president of the Slovak Republic in 2000 and published in Collection of Laws in 2001.

In 2012 it was decided to split the Heritage Office into separate State Office for Culture and State Office for Cultural Heritage. This was the only legal reform. It is important to say that the current position of Slovakia is one of the more advanced in Eastern Europe, and the existing legislation and institutional framework is the result of almost 25 years of legal reforms and institutional development. However, it is also important to emphasize that the level of implementation of laws and regulations is considerably lower than the level of legislation itself.

---

TH2-07 Abstract 03

25 years of Preventive archaeology in the Czech Republic

Author - Mgr. Kucharik, Milan, Labrys o.p.s., Praha 9, Czech Republic (Presenting author)
Co-author(s) - Siroky, Radek, ZIP o.p.s., Pizen, Czech Republic

Keywords: Czech Republic, Preventive archaeology, private sector

Presentation Preference - Oral

The situation in the Czech Republic is characterized by the beginning of the economic crisis in year 2008 boom in the number and financial volume of archaeological researches and development of private companies in the archaeology. In the years 2008 – 2015 passes through the whole archaeology crisis, which is characterized by strengthening the presence of the central institutions, especially the Czech Academy of Sciences (CAS), based on Slovak-type research organizations.

Development of the private sector in archaeology is limited by the demands of public institutions and inadequate legislative framework. The last law regulating the archaeology is from year 1987. This law has been amended several times. The law does not give sufficient legal framework for preventive archaeology and in practice frequently updated customary legal principles. It is to try to interpret the current law framework as a system of dual authorization, which represents one step permits the Ministry of Culture and a kind of second stage authorization with the CAS. It is part of the CAS effort to actively exercise control of the territorial jurisdiction of archaeological organizations and their burden is disproportionate control ambitions. Yet completely lacking standardization of archaeological activity and standard of preventive researches.

Maltese convention in the Czech Republic interpreted by the authorities as a binding international treaty by archaeologists as support for strictly archaeological preservation. Typical is the small proportion of archaeologists on the
preparation of building and development projects. In the structure of private sector in the Czech archaeology we find large and small companies, nonprofit organizations exclusively. The companies are purely archaeological and also joining other professional activities (for example environmental research, building history). Irrespective is a role of private entities in improving the quality of standards, especially in the case of development-led archaeological projects (final reports). Gray zone without a clearer anchoring represent service companies without expertise stuff, which are working for public and government institutions.

After 25 years in the Czech Republic still completely absent the existence of standards for private sector activity in archaeology. Preventive archaeology in the Czech Republic so far been rather limited.

TH2-07 Abstract 04
Archaeological Heritage in Lithuania after 1990s: Defining, Protecting, Interpreting

Author - Dr. Poškienė, Justina, Vilnius University, Faculty of History, Vilnius, Lithuania (Presenting author)
Keywords: archaeological heritage, assessment, protection
Presentation Preference - Oral

Legislative decisions facilitated notable changes in the field of cultural and archaeological heritage protection in Lithuania after 1990s. National legislation was essentially modified twice: in 1995 and in 2005. Significant changes can be observed in the field of defining (accounting, assessment and listing), protecting (regulations on excavations' procedures or “protection through documentation”, preservation of archaeological remains in situ), as well as interpreting (by state bodies and public) of the archaeological heritage.

There are approx. 3000 archaeological heritage objects listed in the state Register of Cultural Property. The procedure of listing has been changed several times after 1990s. Since 2005, a heritage object is listed in the state Register of Cultural Property after an assessment council decides that a property is in the need of legal protection. The significance, the valuable properties of objects or sites of cultural heritage are assessed, and the boundaries of territories are defined by the immovable cultural heritage assessment councils as well. The specialized assessment council for archaeological heritage was established in 2012. State administrative and technical resources were concentrated mainly on preparation of new documentation type for already listed heritage objects, and thus led to a certain stagnation of inventing 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 its reorientation of management perspective from “archaeological object” towards its “user” is still needs to be developed.

TH2-07 Abstract 05
Implementation of La Valletta convention: the Croatian perspective

Author - PtD Sirovica, Filomena, Archaeological Museum in Zagreb, Zagreb, Croatia (Presenting author)
Keywords: Croatia, in-situ preservation, preventive archaeology
Presentation Preference - Oral

European Convention on the Protection of the Archaeological Heritage, released by the Council of Europe in 1992, had a significant influence on the practice of development-led archaeology in Croatia. Ratification of the Convention in 2004 and its implementation in legislation brought drastic changes by which archaeology became a part participant in planning of spatial and infrastructural development. But the changes did not include the full range of requirements needed for the successful practice of preventive archaeology.

Considering this problem it becomes observable that the attitude expressed in the Convention considers prevention as a prerequisite for the preservation of cultural heritage, and, rather than through salvage archaeological excavations, acts through active participation in the early stages of planning procedures. This process requires a developed set of tools which enables informed decision-making on the treatment of archaeological remains. As a part of the same process, concept of care and protection of archaeological monuments is being replaced with an approach directed towards the management of archaeological heritage where the main focus is placed on the issue of long-term sustainability and thereby the issue of in-situ preservation of archaeological heritage.

As Croatian archaeology is still not turning in that direction, this paper will be focused on consideration of factors which can fulfill the requirements for implementation of efficient preventive archaeology, but also the ones which are currently preventing Croatian archaeology in changing attitude towards sustainable heritage management.

TH2-07 Abstract 06
Commission for archaeological research (CAR) in Slovenia

Author - Brdičnik, Danijela, Zavod za varstvo kulturne dediščine Slovenije, Celje & Maribor, Slovenia
Co-author(s) - Cajzer Caňih, Mihela, Zavod za varstvo kulturne dediščine Slovenije, Celje & Maribor, Slovenia
Co-author(s) - Prof. Noviček, Predrag, University of Ljubljana, Ljubljana, Slovenia (Presenting author)
Presentation Preference - Oral

The role and significance of the Commission for archaeological research (CAR) in the system of preventive archaeology in Slovenia (Danijela Brdičnik & Mihela Cajzer Caňih, Institut for Protection of Cultural Heritage of Slovenia). CAR, though previously existed in different forms and structure, was re-established in 2009 as a counselling body of the Minister of Culture, who is according to the Cultural Heritage ACT (2008) responsible for issuing the legal permits for any physical intervention into objects designated as cultural heritage. To CAR (numbering 7 experts from conservation, museum and academic fields in archaeology), according to the Regulations on Archaeological research, all requests for reasearches (preventive, academic or other) are obligatory addressed and reviewed from a number of pointviews (reasons for research, competency of research team, correspondency with conservation plans and recommendations, other legal and financial aspects). After review, CAR issues recommendations to the Minister for signing the permits. Since its establishment in 2009, CAR is maintaining a data base of more than 1500 reviewed research projects proposals. This data base is excellent source for following the actual developments and trends, especially in preventive archaeology (more than 95% of proposals fall into this category) in Slovenia. These trends will be presented in the paper.

TH2-07 Abstract 07
Perspectives of development-led archaeology in Serbia

Author - Rakićevac, Tonko, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Presentation Preference - Oral

Depending on the political discourse, archaeological tradition, history and the perception of heritage, different countries adopted the La Valletta Convention in different ways. Especially remarkable was the introduction of development-led archaeology (DLA) in counties with former communists/ socialist regimes. Serbia is a country with an archaeological history stemming from the 19th century; with conventionally good archaeological practice, and an exceptional regional academic tradition. The modern state of Serbia has maintained its good archaeological practice despite a significant decrease in the state funded projects. However, despite having a reliable network of institutions and a strong academia, the major recent motorway projects demonstrated the range of problems which could arise from development-led excavations. It has proven that the transformation of archaeology from an academic discipline into an effective (public and/or commercial) in preventive strategies does not represent a small step. Deeply entrenched habits from Serbia’s rich and long archaeological tradition could not have been transformed at such a short time.

TH2-07 Abstract 08
Preventive Archaeology at the Reserve Bench

Author - Petricinčič, Milos, Center for Conservation and Archaeology of Montenegro, Kotor, Montenegro (Presenting author)
Keywords: Cultural Heritage Protection, Montenegro, Preventive Archaeology
Presentation Preference - Oral

Montenegro, an independent state since 2006, and one of the smallest countries in Europe with 625,000 inhabitants, was able to develop archaeology as a discipline and its own heritage protection service rather late, after the WW2, in the context of former socialist Yugoslavia, when it also developed the necessary institutional infrastructure (museums, heritage protection institutes, but not university studies in archaeology or their heritage related disciplines).
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 structures towards a more institutionally centralized and ‘nationalized’ organization. Unfortunately, this had a rather negative impact on the development of archaeology, especially its service in the field of preventive strategies, which were never properly reflected and attempted in archaeological circles since they were established ‘from above’. It is still common practice, that most of the largest projects in spatial development (e.g. highway construction) almost completely exclude preventive archaeology, while the situation regarding the booming tourist and construction industry in the coastal areas is even more difficult than it used to be 25 years ago.

**TH2-07 Abstract 09**

**Bosnia and Herzegovina: preventive archaeology still recovering**

**Author:** Hadižhašanović, Jesenko, Faculty of Philosophy of University of Sarajevo, Sarajevo, Bosnia-Herzegovina (Presenting author)

**Co-author(s):** Kaljanac, Adnan, Faculty of Philosophy of University of Sarajevo, Sarajevo, Bosnia-Herzegovina

**Keywords:** Bosnia and Herzegovina, recovery, preventive archaeology, heritage protection

**Presentation Preference:** Oral

Organization of archaeological heritage services, museums and education in Bosnia and Herzegovina, after the end of Yugoslavia, and especially after the establishment of the post-Dayton peace agreement (1998) radically changed the situation to the last 25 years ago. Four major determinants can be seen today, all closely connected with the general state of the country itself are: highly fragmented territorial and administrative organization: One organization on state level, two on lower, entity level, as well as one on level of BiH district. Entity of Federation of BH is further divided in 10 cantons, of which 5 have cantonal institutions responsible for protection of heritage, while the other 5 have these responsibilities entrusted to the cantonal ministries. Because of dis harmonized 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 of BiH is among the lowest ranked countries in Europe regarding the GDP, preventing any substantial investment, employment in services in public sector (heritage services included). Most of museum institutions on local level have barely sufficient financing for basic operation. Inadequate (outdated) infrastructure: lack of trained people, equipment, unfilled institutional development. Political situation: Because of the political deadlock over financing of 7 cultural institutions on state level, National Museum of Bosnia and Herzegovina was closed for almost 3 years, and other institutions that previously enjoyed state sponsorships in former state of Yugoslavia, have lost most of funds necessary to function properly.

**TH2-07 Abstract 10**

**Practice of Archaeological Heritage Management in the Motorway Constructing Programme in Poland**

**Author:** Prof. Dr. hab. Rospecki, Seweryn, Instytut Archeologii Uniwersytetu Łódzkiego, Łódź, Poland (Presenting author)

**Keywords:** Poland, rescue archaeology

**Presentation Preference:** Oral

One of the effects of political transformations in Poland of the last 25 years was a necessity of confrontation with huge infrastructural problems. One of them was, and still is, a poor state of motoways 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 became an object of a market game. Sometimes, a victim of this game is social interest, and research are conducted at the lowest acceptable level.
activity. It is therefore necessary to prepare the archaeological community for the transformation of its activity towards technical 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

Author: MA Poč, Enina, Archaeological Service Agency, Tirana, Albania

Co-author(s): - Klepić, Zguro, Archaeological Service Agency, Tirana, Albania, (Presenting author)
- Mesić, Marko, Archaeological Service Agency, Tirana, Albania
- Poč, Enina, Archaeological Service Agency, Tirana, Albania
- Porja, Ajiot, Archaeological Service Agency, Tirana, Albania
- Zoto, Rudina, Archaeological Service Agency, Tirana, Albania
- Gula, Ilira, Archaeological Service Agency, Tirana, Albania

Keywords: Prehistoric archaeology

Presentation Preference - Poster

The Archaeological Service Agency is the first and only public institution in Albania charged to exercise authority over the rescue and preventive archaeology. Its activity is supported and coordinated by the Albanian Legislation, with the law “On Cultural Heritage” (2003).

The archaeological resource management as elsewhere in Europe after the review of the European Convention for the Protection of the Archaeological Heritage (1992), has drastically changed the whole system of the archaeological heritage management in Albania. The cultural heritage law of 2003 was amended further in 2006, 2008, 2009, 2013 and is currently under full revision.

The amendments of 2008 led to the creation of the ASA and National Council of Archaeology. ASA is assigned with a highly complex task that includes both the supervision of the archaeological projects and the undertaking of rescue excavations across the country.

ASA is also responsible for any chance find, that possibly appear during agricultural, construction or engineering projects around Albania. Their appearance sometimes may only represent the beginning of a long evaluation process to be finalized with the establishment of a new archaeological site that requires protection as the prerogatives of the law anticipate. During the last year, ASA has dealt with a particular case as it will be explained below. At other scenarios, the chance finds can be particularly rare and isolated and further exploration may not yield additional information.

Prior to the foundation of ASA, these tasks were undertaken by the Archaeological Institute of Tirana in cooperation with the Albanian Rescue Archeology 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 archeological chance finds.

The archaeological excavation results. The preliminary study of the archaeological material and method of construction, dates both graves around cent. 3 - 2 B.C. During the excavation process the team (ASA and RDNC Gjirokastër) conducted a survey around the area measuring approximately 3.5 hectares. A high intensity of finds (tiles, bricks, pottery shreds and some rubble walls) was encountered on surface. Taking into serious consideration this potential, the NCA agreed to give to this area the special status of protection. 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 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 Krhës: Helenistic, 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)
- Zachar, Jan, Via magna s.r.l., Vruty, Slovakia
- Tasić, Nenad, University of Belgrade, Belgrade, Serbia
- K.a. Lužiš, TeraVera 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 benefited from the development of ICT and other digital technologies. These technologies (combined with new concepts of preventive archaeology) had major impact on economy in archaeological heritage sector, providing a set of new and highly efficient tools for facing the scientific and business challenges. Moreover, not only that ICT and other digital technologies provided cost-efficient tools, they also boosted development of new kinds or archaeological research and manipulation with large data sets.

Four partners from Slovenia, Czech republic, Slovenia and Serbia (2 SMEs: VIA-MAGNA s.r.o. TeraVera, 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.

TH2-07 Abstract 16
From 3D models to 2D documentation: Implementation of 3D models in archaeological documentation

Author: Jincić, Nenad, Faculty of Philosophy – University of Belgrade, Belgrade, Serbia (Presenting author)

Keywords: 3D scanner, Archaeological documentation, Preventive archaeology

Presentation Preference - Poster

Despite the fact that the law has not been changed for years, the workload in preventive archeology is constantly growing. More investment leads to a growing number of excavations, and consequently to the growing number of small finds to be documented. Motivated by the needs for fast and accurate documentation, we developed a new system for documenting finds from preventive archeology excavations.

In comparison to the traditional way of documenting archaeological artifacts that is represented by technical drawing and photographing that require a certain skill and are time-consuming to a certain degree, we are using a new approach. We decided to use a 3D scanner, with system based on digital cameras and structured light. From the completed 3D models, we provided horizontal cross-sections (profile-line) for documentation, as it would be done by manual drawing. The advantages of working with 3D models are high accuracy and speed, as for a 3D model and cross-section. This process also provides photos of the artefacts.

Advantages of this way of documenting will be presented, as well as wide use of its results. Not only that the technical documentation from excavation can benefit, but also the presentation of artifacts.
MANAGEMENT OF ARCHAEOLOGICAL SITES IN TURKEY: PROSPECTS AND FUTURE

TH2-09
Friday, 2 September 2016, 14:00-16:00
Faculty of History, Room 217

Author - Boukssisseh-Khan, Didier, METU/Odtu Yerlesim Arkeolojisi Anabilim Dalı, University College London, London, Unifad Kingdom (Presenting author)

Co-author(s) - Prof. Erçiyas, Deniz Burcu, METU/Odtu Yerlesim Arkeolojisi Anabilim Dalı, Ankara, Turkey

Presentation Preference - Regular session

Which sites to manage and why managing them? • How to manage an archaeological site and what to manage? • Community involvement and public archaeology in Turkey • Participatory management • Impact assessment of archaeological projects • Rural development • Local/regional development.

In this session it is proposed to ask participants to consider the shortcomings in the management of archaeological sites by archaeologists involved in Turkish archaeology; we hope to argue for a greater need for structured organisation and involvement in the management process. The session envisage to place a special focus on archaeologists and sites directors involved in field archaeology in Turkey: their involvement not only as stake holder on the management of archaeological site during the field seasons but also pre- and post-excavations and survey. The aim of this session would be to create awareness for the needs for site management for archaeologists in association with local authorities. It is also hoped that cross-fertilisation between archaeologists and heritage managers would lead to fruitful exchanges on the variety of processes and methods for managing archaeological sites. The session organisers hope to attract participation to the session from Turkish and international archaeologists and practitioners concretely involved in archaeological field work in Turkey. The ambition is to select the best papers to be published in a specially edited volume of CMSJ (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 03
Protecting and communicating Arslantepe: work in progress to save and narrate an early state centre

Author - Dr. Balossi Restelli, Francesca, Sapienza University of Rome, Rome, Italy (Presenting author)

Co-author(s) - Frangipane, Marcella, Sapienza University of Rome, Rome, Italy

Presentation Preference - Oral

MANAGEMENT OF ARCHAEOLOGICAL SITES IN TURKEY: PROSPECTS AND FUTURE

TH2-09
Friday, 2 September 2016, 14:00-16:00
Faculty of History, Room 217

Author - Boukssisseh-Khan, Didier, METU/Odtu Yerlesim Arkeolojisi Anabilim Dalı, University College London, London, Unifad Kingdom (Presenting author)

Co-author(s) - Prof. Erçiyas, Deniz Burcu, METU/Odtu Yerlesim Arkeolojisi Anabilim Dalı, Ankara, Turkey

Presentation Preference - Regular session

Which sites to manage and why managing them? • How to manage an archaeological site and what to manage? • Community involvement and public archaeology in Turkey • Participatory management • Impact assessment of archaeological projects • Rural development • Local/regional development.

In this session it is proposed to ask participants to consider the shortcomings in the management of archaeological sites by archaeologists involved in Turkish archaeology; we hope to argue for a greater need for structured organisation and involvement in the management process. The session envisage to place a special focus on archaeologists and sites directors involved in field archaeology in Turkey: their involvement not only as stake holder on the management of archaeological site during the field seasons but also pre- and post-excavations and survey. The aim of this session would be to create awareness for the needs for site management for archaeologists in association with local authorities. It is also hoped that cross-fertilisation between archaeologists and heritage managers would lead to fruitful exchanges on the variety of processes and methods for managing archaeological sites. The session organisers hope to attract participation to the session from Turkish and international archaeologists and practitioners concretely involved in archaeological field work in Turkey. The ambition is to select the best papers to be published in a specially edited volume of CMSJ (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 03
Protecting and communicating Arslantepe: work in progress to save and narrate an early state centre

Author - Dr. Balossi Restelli, Francesca, Sapienza University of Rome, Rome, Italy (Presenting author)

Co-author(s) - Frangipane, Marcella, Sapienza University of Rome, Rome, Italy

Presentation Preference - Oral

The complete implementation of this program with the realization of the infrastructure necessary for the valorisation of this archaeological area will favour the development of sustainable tourism that will become an important part of the community’s cultural heritage and economic growth.

TH2-09 Abstract 02
Eliausia Sebaste: safeguarding & valorization of a south-eastern Anatolia archaeological site

Author - Prof. Equini, Eugenia, Sapienza Università di Roma, Rome, Italy (Presenting author)

Keywords: Eliausia Sebaste, safeguarding, valorization

Presentation Preference - Oral

During the archaeological research that has been carried out on a continued basis since 1995 at Eliausia 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 realized in collaboration with the Local and Regional Administrations that will allow to enhance in a sustainable way the extraordinary cultural heritage of this area of Turkey. This project must impose the indispensable town planning bonds in order to protect the precious archaeological and physical landscape of Eliausia from new building constructions in sensitive areas and from illegal waste dumping.

At present 4 different itineraries have been designed - on the basis of also 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 Eliausia and the near ancient city of Korykos (modern Kışlaçağ) was started during the 2015 campaign with bush clearing and careful cleaning carried out by the Mesrin and Erdemli Belediye. The results that have been obtained so far are very promising for the pursuing of the program to extend the visitor’s itineraries and valorisation.

The 2nd itinerary is to be in the Public Quarter; the 3rd will concern the structures investigated on the promontory which is the most difficult to implement due to the morphology and extension of the terrain, the 4th will be related to the Temple area on the hill surrounding the site of Eliausia Sebaste.

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 04
Multiple layers and multiple players: management layers and archaeological conservation in Turkey

Author - Öz, B. Nilgün, Istanbul, Turkey (Presenting author)
Co-author(s) - Depaepe, Pascal, INRAP, Amiens, France
Author - Kerouanton, Isabelle, INRAP, Poitiers, France
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 larger-scale management and conservation of their sites. Conservation management at urban and rural archaeological sites in Turkey is usually spearheaded by accredited architects and planners. As in other countries, archaeologists have often tended to work in isolation, away from the responsibilities of the larger-scale 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-funded projects at several sites across the country including Aphrodisias, Çatalhöyük, and Kaman-Kalehöyük among others.

TH2-10 Abstract 01
Management of large archaeological projects in a competitive environment: the French case

Author - Dr. Depaepe, Pascal, INRAP, Amiens, France (Presenting author)
Co-author(s) - Kerouanton, Isabelle, INRAP, Poitiers, France
Co-author(s) - Talon, Marc, INRAP, Amiens, France
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 Seine-Nord Europe. Methodological proposals will also be presented.
Managing the archaeological heritage

TH2-10 Abstract 02
Who pays? The developer or the owner?
A fundamental and unforeseen change in Malta archaeology

Author - Vannookerhe, Jan, Ministry of Culture, Malta (Presenting author)
Keywords: developer, financing, owner
Presentation Preference - Oral

Since 1990, most European countries have introduced the « polluter pays » principle in preventive archaeology. According to the Valletta (Malta) convention, the financing of the archaeology should be integrated in the (big) public and private works and in practice, developers are funding it, or most of the archaeology.

However, recent evolutions are completely undermining one of the basic principles of the Valletta convention. As big public and private works are getting rare in North-Western Europe, preventive archaeology is more and more about small and medium projects. Developers, and their banks which are providing money for the projects, negotiate contracts with the owners, stipulating that the presence of archaeological sites modifies these contracts. In France, these types of contracts are now very common. They indicate that the costs of excavation should be deducted from the cost of the plot of land.

In this way, the polluter pays principle is in fact replaced by the « owner pays » principle. This is not just a theoretical change but has important consequences. One of these concerns rural areas where excavations are getting rarer as the cost of land is less than the price of excavations. More generally, excavations tend to concentrate where the land cost is the highest.

Excavating England: Development and developments in archaeological fieldwork since 1990

TH2-10 Abstract 03
Excavating England: Development and developments in archaeological fieldwork since 1990

Author - Victoria. Donnelly, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: big data, development-led archaeology, modern fieldwork practice
Presentation Preference - Oral

Excavating England: Development and developments in archaeological fieldwork since 1990 Archaelogical fieldwork in England has changed significantly since the introduction of Planning Policy Guidance (PPG) 16: Archaeology and Planning which introduced the principles of the Valletta Convention into the English planning system. There has been an explosion of data that has been produced from development-led archaeology which initially overwhelmed the traditional systems of analysing and disseminating the results of archaeological investigations and which required an evolution in the systems and methods relating to archaeological research design and fieldwork investigation. But are these new modern systems really as different as we think they are? How does the nature of development-led archaeology impact the results of archaeological fieldwork investigations? results that form the basis of our interpretation and understanding of the archaeological record?

The European Research Council funded English Landscapes and Identities Project based at the University of Oxford is a ‘big data’ project that combines local, regional and national databases to illuminate continuity and change in settlement and use of the English landscape over a 2500 year time span, from the middle Bronze Age to the Domesday Survey. The project database currently holds over 900,000 records relating to archaeological fieldwork in England; the vast majority of these records have been generated since 1990. It quickly became apparent that the English Landscapes project was not just documenting the behaviours of people in the distant past but also the more immediate and recent past: the nature of our data is clearly structured by modern archaeological practice. Our data shows that there are currently over 2400 unique archaeological organisations in England that have been involved in the archaeological fieldwork since 1990. Although they range from commercial development-led companies, academic university departments to charity groups and volunteer organisations, the vast majority of these fieldwork investigations occur as part of the development and planning framework, within the context of a commercial system. The nature of proposed development, from aggregate extraction quarry sites, major road and rail infrastructure schemes and large scale housing development sites to smaller urban infilling and localised development schemes, clearly shapes both the design of the associated archaeological investigation and the resultant data. Archaeological fieldwork can range from massive landscape scale studies to constrained ‘keyhole’ investigation schemes and can be undertaken by large national companies or small ‘sole trader’ individuals. Examining how English archaeology has changed since 1990 and the advent of PPG 16 provides interesting insights into modern day archaeological practice and the relationship between legislation and the quality and quantity of archaeological data that has been produced.

This paper will explore how modern development has created and influenced development-led archaeology in England and how this influence has an underlying structuring effect upon the resultant English archaeological record.

Archaeology and the Medieval Towns of Norway - before and after 1990

TH2-10 Abstract 04
Archaeology and the Medieval Towns of Norway - before and after 1990

Author - Johansen, Lise-Marie Bye, Norwegian Institute for Cultural Heritage Research (NIKU), Oslo, Norway (Presenting author)
Keywords: managing cultural heritage, Rescue archaeology, scientific research
Presentation Preference - Oral

The aim of this presentation is to discuss the changes in management of the medieval towns in Norway, and its impact on archaeological excavations and scientific research. Norway has a strong legislation regarding archaeology and cultural heritage. The Cultural Heritage Act states that all remains older than the Reformaion (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 research excavations has been carried out and the scientific research. Until 1990 the research was focused on the medieval objects and the development of the towns, with the remains of houses, property boundaries and roads. Since 1990 the Norwegian Directorate for Cultural Heritage has had a policy to preserve medieval archaeological remains in situ and allowing piling through the layers as a fundamentation for houses and roads. This has encouraged research on monitoring culture layers in situ and the development of research related to nondestructive methods. Since 2013 a new railroad project in Oslo has resulted in a huge rescue excavation across the medieval town. New methods are applied in the field. How will this impact a new generation of researchers and the future management of the medieval towns?

Problems and solutions in large scale rescue excavations as seen from Saxony, former East-Germany

TH2-10 Abstract 05
Problems and solutions in large scale rescue excavations as seen from Saxony, former East-Germany

Author - Dr. Staebuler, Harold, Heritage Office Saxony, Germany, Dresden, Germany (Presenting author)
Keywords: large scale rescue archaeology, scientific outcome
Presentation Preference - Oral

According to its federal organisation and different heritage laws in Germany there are different heritage laws and also different practices in handling large scale rescue excavations. This regards all aspects of the topics to be discussed in the session, beginning with its organisation and financing, the methodological tools, the way to cope with the exponential increase of the archaeological material as well as with its presentation to the public in academia. There is even a different acceptance of these ‘hyperactivities’ as dictated by economic development and financing possibilities. But not all controversial debates are to be explained by different laws, traditions or by former socio-political borders.

Some of the differences and similarities will be presented from the point of view of Saxony, where regarding large scale rescue excavations big changes indeed took place during the early 1990s.

Changing concept of large-scale excavations in the Czech Republic

TH2-10 Abstract 06
Changing concept of large-scale excavations in the Czech Republic

Author - Dr. Šumberková Institute of Archaeology of CAS, Prague, v.v.i., Kutná Hora, Czech Republic
Co-author(s) - Pardí, J., Institute of Archaeology of CAS, Prague, v.v.i., Prague, Czech Republic
Co-author(s) - Kugler, P., Institute of Archaeology of CAS, Prague, v.v.i., Prague, Czech Republic (Presenting author)
Keywords: large-scale excavation, NeoUthic
Presentation Preference - Oral

This abstract will explain how modern development has created and influenced development-led archaeology in England and how this influence has an underlying structuring effect upon the resultant English archaeological record.
This paper assesses issues connected to the implementation of large-scale archaeological excavations, emphasizing in particular the importance of research non-rescue excavations in progressing archaeological research. In the European archaeological perspective, these issues are complex and the problem will therefore be discussed within the context of the Czech archaeological discourse concerning the earlier prehistory. Two types of large-scale excavations will be compared: 1. Non-rescue excavation of the Neolithic site at Bylany, which started in the late 1950s 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
Co-author(s) - Olech-Stil, Agnieszka, Institute of Archaeology, University of Warsaw, Warsaw, Poland (Presenting author)
Keywords: LIDAR, Photogrammetry, technology
Presentation Preference - Oral

The aim of this paper is to enrich academic discussion about broadly understood “modern” or “new” technologies in Archaeology by assigning actual facts and statistical information to various claims and propositions circulating in Academia. Further, to inform exactly how many research of what kind took place in the 2009-2014 period and in each year of this period, which method is most popular, and if there are any general tendencies to be noticed in usage of particular methods. Authors use as a base for this case study a certain area of nine counties in central Masovia region (Poland), which is moderately enriched by objects of archaeological importance, yet where a consistently high number of private and public investments causes steady, high number of archaeological projects to be carried out in recent years. These are conducted on different scale from one day watching briefs up to road scheme projects covering large previously underdeveloped areas around the city of Warsaw, and are carried out both by local archaeological teams and units from other parts of the country. A common factor is almost exclusively commercial character of work, also an important background is created by the EU funds inspired boom in infrastructural investments, that will most likely be the largest event of such scale for many years to come. Data presented here is collected from all field reports and documentation collected on a basis of art. 31 of Polish Monument Care and Protection Act by Małgorzata Wojdyłło, Heritage Office Officer for the period of 6 years (2009 - 2014). Article does not aim to discuss quality of such work or validity of chosen methods for the projects they have been used in – this is a matter for another study. Neither it is the authors aim to qualify, which method is more suitable for future use in the field archaeology in this region. This report should be treated as factual base for future discussion and an attempt to present the condition of Polish Archaeology in its certain aspect.

TH2-10 Abstract 08
Rescue Archaeology in Romania. Past and perspectives
Author - Magureanu, Andrei Mircea, Institute of Archaeology Vasile Parvan, Bucharest, Romania (Presenting author)
Co-author(s) - Magureanu, Despina, Institute of Archaeology Vasile Parvan, Bucharest, Romania
Keywords: academic research, cultural management, rescue archaeology
Presentation Preference - Oral

1989 represented a turning point for Romania not only from political point of view, but from cultural management also. Romania, willing to be integrated into the European structures, adopted a brand new strategy regarding historical patrimony in concordance with European legislation and not only. From this point of view this was a dramatic change, suggesting that all is going into one direction. But one is theory and other is practice. Did the practice evolve into the same direction and with the same speed?

Preventive archaeology or rescue archaeology was part of archaeological practice before 1989, also. Today, both represent a more and more important way to produce historical knowledge. So, there are differences? What those differences are? Importance into cultural strategy of gouverment? Technology aplied in the field? Interpreting the data? It is the reflection of 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 underpinnd 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 'preventive' 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 Romania. For state organisations (departments of the Romanian Academy of Sciences, museums, universities) the system of taxation remains in place, in which there are no tax-breaks. However, in 2004 the Russian Federation brought in a tender scheme for a wide range of different services – including archaeological services. The primary consideration under which such tenders were won or lost, was the price quoted for their completion. Non-state organisations were placed at a significant financial disadvantage under these arrangements. During the period of the Russian economic crisis of the 1990s (and especially arising from 'black holes' in legislation) a significant Black Market developed for archaeological artefacts. In 2013 a new Federal Law came into force, No 245 (Concerning amendments to Particular Legislative Measures of the Russian Federation which prevent illegal activity in the field of archaeology).
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 architect. A rapid development of the construction business led to a great amount of preventive excavations. Tver State University solved a problem of the necessity of young archeologists training. About 10 state and commercial organizations dealing with the preservation of the archeological heritage work in the Tver Region nowadays. To summarize, there are two components of the archeological heritage protection system in Tver Region. Department on State Protection of the Cultural Heritage and archeological organizations. This system is effective. In the territory of the historical centre of Tver there were rescue excavations carried out on the territory of more than 40000 m². Archeological works were also carried out during the construction of the new roads, oil and gas pipelines. However, there are still prospects for further development - a collaboration with society and civil society organizations on the protection of the cultural heritage is necessary. It is crucial to realize the value of the archeological heritage as well as the importance of improving the scientific relevance of the preventive archeological works.

---

TH2-10 Abstract 11

"Amateur" archaeology, legal or not?
The experience of a legislative practice in Russia

Author - Sapyrina, Irina, Institute of archaeology RAS, Moscow, Russian Federation
Co-author(s) - Zelenskova, 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 archeological heritage conservation for a society to realize the value of the losses of the pillage of archeological sites. In 2014 in Russia the federal act №315 was adopted, directed to the heritage rescue and consisted of the assets on criminal liability of "grave robbers" (up to 6 years). Apart from the asset of the encouragement of the persons doing the illegal excavations on the territory of archeological sites, this law contains norms and regulations new to the Russian legislative practice: about the territory of an object of an archeological heritage, about the state historical and cultural expert evaluation, about the mainstreakification of the objects of an archeological heritage, about the state national objects' register and the encourage of the liability of archeologists. The report is about the analysis of the practice in the application of the federal act 315 for the last two years from the moment of its adoption.

---

TH2-10 Abstract 12

Moscow Monasteries: new stage of the archeological investigations (2003–2015)

Author - Beliaev, Leonid, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)
Co-author(s) - Grigorian, Svetlana B., Institute of Archaeology of RAS, Moscow, Russian Federation

Keywords: Late Middle Ages, Early Modern times, Moscow monasteries, new investigations
Presentation Preference - Oral

Archaeological investigations of the Zachatievsky Alekseevsky monastery (Datozhnka) that were started in 2003 laid the foundation for the new stage of the monasteries investigations which at the present time is recognized as one of the most important stages in the archeology of the Late Middle Ages and Early Modern times in Russia. Until the last third of the 20th century monasteries of the Moscow period haven't been investigated by the archeological methods, the understanding of its structural peculiarities as 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 monasteries of Moscow monastic archeology – the Bogoyavlensky, Danilov and High-Petrovsky monasteries have been investigated and become standard objects. The monasteries of the Moscow Russia were understood as a new type of monuments.

In the beginning of the XXI century the situation has changed cardinaly. At the moment archeology is capable of solving large variety of problems first of all thanks to the development of the fundamental scientific research. Detailed examination of such works is provided by the investigations in Zachatievsky Alekseevsky, Sreteny, Novospassky, Novodevichy and Donskoy monasteries in Moscow and in the Troitse-Sergiyeva Lavra and New Jerusalem monasteries (near Moscow).

The report will present the main results that have been achieved for the last 12 years works, in comparison with the investigations of the 1980s and 1990s.

---

TH2-11 Abstract 01

Growing Living Landscapes

Author - Dr. MacGregor, Gavin, Northlight Heritage, Glasgow, United Kingdom (Presenting author)

Keywords: Archaeology, Future, Landscape
Presentation Preference - Oral

As an introduction to the session, From Archaeological Pasts to Living Landscapes, I will provide some context as to why archaeologists should be concerned with contributing to the growth of living landscapes.

As such, the paper will consider the ramifications to archaeological practitioners of the increasing need for articulation of the management of archaeological and historic environment assets with other tools and instruments which seek to deliver more sustainable landscape management. Ultimately, it will outline some perspectives and areas of practice which could be developed further as opportunities for future innovation in growing archeology 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-Alvarez, David, Universidad Complutense de Madrid, Salas, 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 Maria del Naranco
in Oviedo. We could imagine herds of cattle grazing in the green landscape which is commonly associated with Asturias, but, nevertheless, there is no people in the image. Accordingly, most of the campaigns made since then by the regional institutions and tourism agencies have firmly stablished a primarily focused message on the natural component of the Asturian landscape. Thus, bears are the main characters in advertising and TV spots, while local peasants or the long cultural biography of landscapes are kept silent. Only few outstanding monuments, such as Parque Natural or medieval churches, stand out among the forests in the mountains or 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 skills deployed by peasant communities in taking advantage of the soil potencializes 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 asked whether the landscapes are developed by the local communities in working the land is the main agent in the modelling processes of landscapes in these mountains through the last 6000 years. At the same time, cultural, narratives, the sociopolitical contexts, and their historical roots are central in the relations we (contemporary Europeans) establish nowadays with the rural landscapes. But, are these ideas sufficiently considered by state and regional-level governments in the management of European landscapes?

It seems clear that, rather, this ‘natural paradise’ is actually an artificial image in which the cultural aspects should have a more significant weight. The rural landscape is 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 real peasant communities. Secondly, I think we (archaeologists) should deconstruct the official speeches made by public institutions on the management and promotion of tourism and the Asturian cultural Heritage. In fact, we could disseminate alternative narratives which may reinforce the local peasant positions as stakeholders for the future of rural landscapes.}

Landscape Archaeology can provide more comprehensive narratives about cultural landscapes which would strengthen the role of Archaeology as a valuable Social Science for rethinking the future of rural Europe.

---

**TH2-11 Abstract 03**

Environmental archaeology in rural landscape and heritage management: experiences in Liguria (Italy)

**Author:** Piccinin, Valentina, University of Genoa, San gimignano, Italy (Presenting author)

**Keywords:** environmental archaeology, environmental management, rural landscape

**Presentation Preference:** Oral

Since 1970’s re-naturalisation strategies are currently in use in Italy aiming at the preservation of current environmental conditions or even restoring an ahistorical and aprioristic ‘natural’ balance. These strategies are the results of rural landscape policies and environmental management that have adopted a ‘perceptive approach’, and are exemplified in general policy documents such as those of the European Landscape Convention, within which no attention is paid to the ecology of specific places and sites.

The abandonment of local agro-silvo-pastoral practices, awarded by general and national choices of re-naturalisation of the rural landscape, is one of the main causes of the loss of biodiversity, increase in hydrogeological instability and risk of fires. A redefinition of the actual factors that produced and shaped individual rural landscapes is required for a better understanding and a more sustainable management of this heritage. The historical study of environmental resources involves archaeological, environmental and historical ecology methods of investigation; such a historical approach to specific sites allows identifying, characterising and explaining the environmental resources and rural landscape features as the output of both historical and environmental processes.

This paper presents some research carried out in Liguria (NW Italy) that contributed to the study of land use and of the historical ecology of sites. The first case is related to the restoring of some rural buildings and terraced area located in the Cinque Terre National Park in order to recover past agricultural activities. The second case regards a multiproxy approach to identify evidences of past land use, rural architecture and vegetation coverage in North Liguria. 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 experiences are a direct response to a question of ‘applied history’: the results of this work have been applied in environmental planning and in the Historic characterization of the rural landscape, agro-silvo-pastoral landscapes and local products.

---

**TH2-11 Abstract 04**

Engaging stakeholders, shaping practice: Strategies for sustainable cultural landscape management

**Author:** Dr. Tully, Gemma, Durham University, Durham, United Kingdom (Presenting author)

**Co-author(s):** Dr. Moore, Tom, Durham University, Durham, United Kingdom

**Keywords:** Cultural landscapes, Engaging stakeholders, Sustainable management

**Presentation Preference:** Oral

Understanding and integrating stakeholders as the active creators and beneficiaries of cultural landscapes is an essential but underdeveloped element of sustainable heritage research.

Through work focusing on some of the most significant monuments in European history (Late Iron Age oppida: c.200BC-AD60), this paper will explore how communities (including farmers, small-medium enterprises (SMEs), wildlife organisations and rural business) understand, experience and shape cultural landscapes. The work will focus on the cultural landscape of Astegadengo and Salmonsbury in the UK, which represent 2 of the 4 case study sites involved in the ‘Resituating Europe’s first towns’ (REFIT) project funded by the Joint Heritage European Programme’s (JHEP), Joint Heritage Initiative (JHI). The project represents co-operation between Durham University (UK), Bibracte EPPC (France) and Universidad Complutense de Madrid (Spain), alongside associated partners from outside archaeology (including wildlife management, farming, natural parks and local government) from the three partner countries.

This project recognises that archaeological heritage is only one of many aspects of value – ecological, social, cultural and economic – within cultural landscapes and therefore needs to be part of an inclusive approach to developing landscape resilience. In order to develop better management strategies, the first stage of the project has been the analysis of current stakeholder perceptions of these cultural landscapes. This has been assessed through surveys, interviews and focus groups as well as initial engagement events. This paper examines how these cultural landscapes are used and understood. Using this analysis we explore how current knowledge can be increased whilst integrating existing landscape values into the management of cultural landscapes. As the project progresses, we look forward to seeing how such approaches can be used to develop engagement practices which will enhance cultural landscapes for greater mutual benefit to both landscapes and people.

---

**TH2-11 Abstract 05**

Living Archaeological Sites in Modern World: Discussions on Ancient Rural Heritage in Turkey

**Author:** Assist. Prof. Naci, Nóba, 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”. This heritage is important for current rural development programs, scientific research and public engagement practices which will enhance cultural landscapes for greater mutual benefit to both landscapes and people.

The abandonment of local agro-silvo-pastoral practices, awarded by general and national choices of re-naturalisation of the rural landscape, is one of the main causes of the loss of biodiversity, increase in hydrogeological instability and risk of fires. A redefinition of the actual factors that produced and shaped individual rural landscapes is required for a better understanding and a more sustainable management of this heritage. The historical study of environmental resources involves archaeological, environmental and historical ecology methods of investigation; such a historical approach to specific sites allows identifying, characterising and explaining the environmental resources and rural landscape features as the output of both historical and environmental processes.

This paper presents some research carried out in Liguria (NW Italy) that contributed to the study of land use and of the historical ecology of sites. The first case is related to the restoring of some rural buildings and terraced area located in the Cinque Terre National Park in order to recover past agricultural activities. The second case regards a multiproxy approach to identify evidences of past land use, rural architecture and vegetation coverage in North Liguria. 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 experiences are a direct response to a question of ‘applied history’: the results of this work have been applied in environmental planning and in the Historic characterization of the rural landscape, agro-silvo-pastoral landscapes and local products.
Across Europe rural areas are suffering, in term of loss of biodiversity, cultural landscapes and traditions, as the consequence of depopulation and increasing abandonment of their management. This problem is particularly evident in mountain areas, where the presence of common-lands and common access rights was crucial in shaping settlement patterns and rural landscapes, nowadays often protected as natural heritage.

This paper will consider, through presentation of the first results of a project focused on the archaeology of common-lands in Southern Europe, how archaeology could contribute to the creation of more synergies between research and management of mountain and rural areas.

The study is centered on the connection between social structures and related material evidences of local practices. The investigation pays specific attention to the practices of management and production of agro-forestry-pastoral resources. This approach has clearly shown, on one side, the historical dynamism of rural areas (and in particular of common-lands) for transformation of uses, organization and access rights and, on the other, the contribution of local knowledge to the construction and preservation of historical rural landscapes. The paper will reflect on how archaeology and historical ecology could help to connect historical reconstruction and present management of landscapes. This link could offer new approaches to better define landscape management policies, based on local actors and local management of environmental resources, in the framework of actions for the conservation of rural areas as a part of European Cultural Heritage.

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) - Bastien Prats, Ines, Institute of History, CSIC, Madrid, Spain (Presenting author)
Co-author(s) - Garcia Hernandez, Maria, Universidad Complutense, Madrid, Spain
Co-author(s) - De La Calle Vaquerio, Manuel, Universidad Complutense, Madrid, Spain
Keywords: Cultural Landscapes, Madrid, Tourism
Presentation Preference - Oral

The Community of Madrid (this is the name of the administrative region of Madrid) is one of the main tourist regions in Spain, with the highest density in the use of cultural heritage. 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 search for sustainable uses of cultural heritage. This cultural heritage ensembles as touristic activities 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 archaealogical 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 in the regional context. 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 environment 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 Agustulescu; Mihaela, "Alexandru Ioan Cuza" University of Lasai, Lasai, 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. Oriental and Latin influences came to shape and develop the salt-scape practices in Eastern Romania. This process took place 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, Cultural Landscapes, Tourism
Presentation Preference - Oral

Landscape management is a key-aspect of European policy. Cultural landscapes are described in the European Landscape Convention as bearers of important identity values, and their protection is expected to have a crucial impact on environmental sustainability (preservation of biodiversity and traditional products, prevention of soil erosion and geomorphological instability, etc.) and the safeguard of local communities.

Ethnoarchaeology is placed at the core of this cultural and political framework. Ethnoarchaeological inferences provide crucial insights to understanding archaeological landscapes and their evolution, but they can also contribute to the protection, management and planning of traditional landscapes in Europe and abroad. Despite these potentials, the impact of ethnoarchaeology is still quite limited outside archaeology and outside academia.

This paper wants to address all these theoretical and methodological issues, using a case-study from the Western Alps: Val della Brignola, an upland valley (>1800 m asl) in the Cuneo province (Italy). The local landscape ensembles as touristic activities of the Community of the Alps. 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 archaealogical landscapes of the region of Eastern Romania. 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 in the regional context. 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 environment 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.
The Landscape of Via Appia Antica

Author - Flamman, Jeroen, Vestigia Archaeologie & Cultuurhistorie, Amersfoort, Netherlands (Presenting author)

Co-author(s) - Curcio, Mariateresa, University of Rome ‘Sapienza’, Rome, Italy

Keywords: Archaeological Park, Landscape of ruins, Via Appia Antica

Presentation Preference - Oral

The landscape of Via Appia Antica, characterized by ruins of imposing monuments immersed in the vast countryside, doubtless preserves some of the richest cultural heritage of the ancient world, whose fascination has been celebrated by artists and writers since the Renaissance. For centuries these archaeological ruins have played the role of generic memories, beautiful fragments creating romantic panoramas, findings decontextualized from their environment, waiting to be looked at, dreamed of, but unterprised, except by specialists. The lack of reception of their historical value by the community has led to the abandonment of archaeological sites; and, therefore, the past has been seen as an immovable, faraway, meta-historical, idealized, unattainable reality that can only desperately store or regret, or even (as has been the case so far) simply be ignored. For these reasons, although since Napoleonic times different plans have envisaged Via Appia as becoming a great archaeological park between the Roman Forum and the Alban Hills, this idea has been threatened by private interests, such as housing construction. Even after the creation of the Park in 1988, the aims of which are, however, at most naturalistic, 95% of the area has remained in the hands of private entities. Moreover, the traditional approach of Italian institutions to the cultural heritage, based on the concept of preservation, constraint, and protection, has increased the gap between archaeology, on the one hand, and communities, on the other, over the past decades.

In occasion of the decision taken by the Italian Ministry of Culture to finally transform this area into a national archaeological Park, a significant number of recent contributions in critical reflections on this paper as a management policy and tools analyzing the significance that archaeology could have for local communities in the creation of a shared identity based on a common landscape and focusing on the inescapably public use of archaeology, which as such must be defined, properly designed, and clearly explained to define new opportunities for building broader sustainability and legacy. In view of the future management of Appia Antica Park as an archaeological Park, inhabitants’ current aspirations and needs in the negotiation of what they feel to be “their own” past and culture with institutions and politicians will be examined. This political perspective will be used to develop a critical reading of the state of archaeology in the Park, illustrating practical examples of “active protection” of its landscape by the citizens and identifying, in institutions and politicians will be revealed. This political perspective will be used to develop a critical reading of the state of the Park and the Alban Hills, this idea has been threatened by private interests, such as housing construction. Even after the creation of the Park in 1988, the aims of which are, however, at most naturalistic, 95% of the area has remained in the hands of private entities. Moreover, the traditional approach of Italian institutions to the cultural heritage, based on the concept of preservation, constraint, and protection, has increased the gap between archaeology, on the one hand, and communities, on the other, over the past decades.

The EAA-lecture will present the work of the foundation ‘De Groene Vesting’ as well as the results of the archaeological research of the lines of the Siege of 3Hertogenbosch 1629. Example are given how archaeological and historic research can contribute to the development of the landscape around the town, how a foundation of volunteers from the local community can start and support local environmental concepts and how these plans are accepted by the municipalities, local community and several entrepreneurs. And also how community for many years results in great plans and ideas for the future.

Archaeology forms a key component of many Landscape Partnerships schemes in the UK. These schemes, funded by the Heritage Lottery Fund, “put heritage conservation at the heart of rural and peri-urban regeneration” (Heritage Lottery Fund 2016) where local, regional and national organisations, often with conflicting areas of interest or priorities, work together to “make a real difference to landscapes and communities for the long term” (ibid). These HLF-funded schemes are designed to make a “major contribution” (ibid) to the UK’s implementation of the European Landscape Convention.

This paper will explore how these schemes contribute to the study, engagement, understanding, management, protection and enhancement of archaeology in the UK, what problems and tensions have arisen and how these obstacles have been addressed. The paper will further examine the sustainability and legacy of such models.

Keywords: Archaeology, Landscape, Sustainability


The greening of Wroxeter: an alternative approach to displaying urban remains

Author - Dr. Murtagh, Paul, Northlight Heritage, Glasgow, United Kingdom (Presenting author)

Keywords: Archaeological Park, Landscape management, Wroxeter

Presentation Preference - Oral

The buried city of Wroxeter in Wrexeter, in the English Midlands, is a challenging site to interpret and present to the public. Its principal focus is the ruins of the town baths, but this is just one visible building within an urban site covering 75ha. The remainder of the site has been down to uniform pasture since 1975 when it was purchased by the State to prevent further damage from ploughing. While the existence of the pasture has not prevented significant research - the major geophysical campaign of the Wroxeter Hinterland Project of the mid 1990s has resulted in the publication of the first full plan of the town, and a new interpretation of its chronological development - the monument is visually unimporting to the general public. This is reflected in the visitor figures for the site, run by English Heritage Trust, which are only in the tens of thousands. Yet immediately adjacent to the site is the National Trust property of Attingham Park (400,000 visitors per annum) while only 8 miles away is the World Heritage Site at Ironbridge (750,000 visitors per annum).

The purpose of this paper is to suggest a radical new approach to presenting the wider area of the town, around the baths at its centre, that will make the extent of the town visible in the landscape. It is suggested this can be achieved through a varied planting scheme that will not damage the underlying archaeology, creating at the same time a network of pathways that will encourage visitation from the surrounding Attingham Park. There would be three-fold benefits from the scheme. It would facilitate access and understanding it would provide a biodiverse landscape among the general monoculture of the surrounding modern agricultural landscape and, lastly, it would encourage a greater diversity of wildlife on the site. Such a planting scheme would not hamper any future archaeological work on the site, but would make the site more attractive to visit for the general public along permissive paths that did not interfere with the possible use of the site by wildlife.
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 Romana.

TH2-11 Abstract 15
Transformation and management of Historical Agrosystems in the Iberian LandscapE5 (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 focus on the analysis of various types of cultural landscapes of the Iberian Peninsula, especially selected by the morphology of their agrarian systems: one of the most homogenous expressions of the interaction between man and territory: 1) mountain landscapes of Sierra del Segura (Albacete) and Sierra de Atlan (Albacete), characterized by small height villages of Islamic origin with an agropastoral economy. The element that characterizes the agricultural systems of these communities is the terrace farming: plots created to take advantage of the mountain slope where are developed infrastructures for the exploitation and distribution of water resources (cultural landscapes generated from the Islamic period to the present day, still in use). 2) plain landscapes of Campo de Hellín (Albacete), the Valle del Vinalopó (Alicante) and Vega Baja del Segura (Alicante), characterized by exploited agricultural environments without interruption from antiquity to the present day, but with different strategies (Roman villas, early medieval rural villages and farmhouses, medieval fiefdoms, contemporary agrarian colonies). Our study focus 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 melange generated by the meeting between the two parts, well visible in the social exchanges, osmosis of ideas and material culture.

Re-centring the specificity of the indigenous archaeology could be an important way to reconsider also the archaeological landscape nowadays and promote new strategies of development of the area. In fact, the case of the South eastern sites are emblematic to describe a shared situation for a considerable number of sites in the Region that are affected by lack of funds and absence of great managing plans. Investigating further the relationship between sites and their natural landscape might be very interesting. Prehistorical sites in Sicily (e.g. Pantalica, Cassibile, Trapani, Monte Finocchito) are set on beautiful and breathing scenarios and the boundaries between archaeological landscape and natural – rural landscape are full of overlaps and possible links. This fact could suggest the idea of possible integrated landscapes where naturalistic tracks, rural traditions and archaeological sites are linked together in unified managing plan for preservation and tourism.

It is still detectable the complete harmonisation of archaeological remains into the rural landscape and the landmarks of rock-cut architecture, still used nowadays in agriculture, as a reference for the ancient deep relationship between humans and landscape and an ancestral proof of the respectful use of the land that the rural civilisation of the area has been promoting since its origins.
Rather than giving up on the human biological material, the situation requires a broader dialogue about the application of analytical and interpretative models and techniques of an analogous or experimental nature in order to better explain and understand the archaeological evidence of human remains. An invitation is put forward for the establishment of a working group focusing on relationships between the young and the old in past societies.

TH2-13 Abstract 02

Mother-child relations in Early Bronze Age Lower Austria

Author: Mag. Dr. Rebay-Salisbury, Katharina, Austrian Academy of Sciences, Vienna, Austria (Presenting author)
Co-author(s): - Appley, Jo, University of Leicester, Leicester, United Kingdom
Keywords: Austria, Early Bronze Age, motherhood
Presentation Preference - Oral

The Early Bronze Age inhumation cemeteries of Lower Austria belong to three cultural groups (Ingolc, Unterwölbung and Wieselburg) with distinct burial practices. They differ in particular in terms of how bodies were placed and buried in relation to each other. In this contribution we scrutinise the archaeological record for evidence of mother-child relations. We will begin by presenting graves of pregnant women and graves of women and children buried together, in order to understand how such individuals were treated by their societies in death. We investigate the most likely ages for life-transitions such as first motherhood and menopause, as well as explore material markers of such transitions. Social responses to pregnancy, birth and early child rearing, as well as the link between women’s reproductive status and social status in Bronze Age central Europe, give insights into the conceptualisation of motherhood in the Early Bronze Age in general, but also into the variability within three closely connected, yet different groups.

TH2-13 Abstract 03

Grandparents in the Bronze Age?

Author: - Dr. Appleby, Jo, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s): - 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. Ethnographical studies show that grandparents take on an extremely wide range of roles worldwide, whether this is teaching knowledge and skills, providing childcare, or even taking on parental roles and titles. In many cases, grandparents play a critical role in the support and socialization of children. Understanding the roles of grandparents thus has the potential to transform our understanding of prehistoric household and family structures. In this paper, we examine the potential impact of grandparents in prehistory. We will use demographic data to explore how ‘common’ grandparents might have been, whilst bringing in a variety of ethnographical examples to identify potential activities and relationships of grandparents and grandchildren. We will then use a case study from the Early Bronze Age Traisental in Austria to show how prehistoric mortuary data might inform us about grandparenting in the Early Bronze Age. The existence of a series of large, well excavated cemeteries from this area makes it possible to investigate how the idea of the ‘grandparent’ might have been constituted both in life and death. In addition, we will investigate the extent to which grandchildren may have had a reciprocal role in caring for grandparents who became incapable either physically or mentally through diseases of old age.

TH2-13 Abstract 04

The white-haired and the feeding bottle: Exploring children-elderly interactions in LBA Aegean

Author: - Dr. Gallou, Chrysanthi, The University of Nottingham, Nottingham, United Kingdom (Presenting author)
Keywords: childhood, elderly, aging, Prehistoric, Aegean
Presentation Preference - Oral

Scholarship on age and gender in prehistoric Greece has taken an adult-centric approach (with focus mostly on young to mid-adult age man and woman) and, as a result, two significant age groups - infants/children and the elderly – have been widely neglected. However, lacking a strong insight into attitudes towards these two age groups, archaeologists do not really harbour a concept of the whole span of life in the Greek-speaking and the non-Greek speaking societies that developed in the Aegean region during the 2nd millennium BC. Making children and the elderly visible in the archaeological record, examining...
their social roles, agency and interactions, 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 spanning from the study of burials (including simultaneous adult-child ones) to iconographic sources and textual references, the aim of this paper is two-fold: a) to provide a comprehensive account of the diverse attitudes towards childhood and the elderly in the region during the Late Bronze Age; and, b) to shed light on the interactions between children and the elderly both at household level and in the context of the medieval household.

TH2-13 Abstract 05
Family constructions and adult-child relationships in the Ancient Greek Oikos
Author - Sommer, Maria, Skanderborg, Denmark (Presenting author)
Keywords: Adult-Child relationships, Ancient Greece, Childhood Archaeology
Presentation Preference - Oral

The presentation will focus on family constructions in the ancient Athenian oikos with special attention to children age 0-7 years. Research points to the fact that children in the ancient Greek household - the oikos - grew up in an extended family with multiple relationships with parents, grandparents, siblings, friends, slaves and caregivers. The theories of alloparenting and multiple caregiving are introduced to give insight to the complex world of children and their peers in the ancient Greek oikos.

This research has been published in: Sommer, M. & Sommer, D. (2019). Care, Play and Socialization in Ancient Africa – A Developmental Childhood Archaeological Approach (DK: Aarhus University Press).

TH2-13 Abstract 06
Circle of Life? Aspects on youth and old age in Viking Age and Medieval Scandinavia
Author - PhD Mejsholm, Lotta, Uppsala, Sweden (Presenting author)
Keywords: Age construction, Burials, Viking Age
Presentation Preference - Oral

In Viking Scandinavian society, people were to a high extent defined and commemorated by their deeds. The productive, freeborn, preferably male, adult formed a societal norm, to which children, slaves, outcasts, unproductive elders and “others” were contrasted. Consequently, and as a result of contemporary academic paradigm, children, and elderly has often been tagged as “invisible” in the records available. Nothing could be more wrong.

In this paper, the sphere of children and elderly in Viking Age and Medieval Scandinavia is explored, as a specific culturally and socially defined construction, contrasted to the normative adulthood, as displayed in textual and archaeological records. In medieval provincial law codes, a clear distinction between man slaughter (killing an equal, a free adult man) and killing children or elderly people, unable to defend themselves, is made. In case of the latter, the killer was charged with a significantly more severe penalty. The defenceslessness of these household dependents is expressed in terms of limited capabilities, which, is argued, is a relevant definition also in academic discussion.

In the burial records from Late Viking Age and Early Middle Age, graves of elderly, impaired, sick peoples and children in many cases differ from those of the productive adults. One specific phenomenon is approached in this paper, namely the use of amber amulets. Amber has been used as protective agent in Viking Age, i.e. as amulets attached to swords. A similar understanding of material remains-spanning from the study of burials (including simultaneous adult-child ones) to iconographic sources and textual references, the aim of this paper is two-fold: a) to provide a comprehensive account of the diverse attitudes towards childhood and the elderly in the region during the Late Bronze Age; and, b) to shed light on the interactions between children and the elderly both at household level and in the context of the medieval household. In recent years a number of early Christian cemeteries have been excavated in the region of Skagafjörður, North Iceland. These cemeteries belonged to, and were managed by, occupants of individual farms and were in use from around AD1000-AD1100. The Early Christian cemeteries differ from the sparse pagan burial record in that they are all inclusive, i.e. include graves of both sexes and all ages, essentially representing all the inhabitants of a household. An interesting feature of these cemeteries is the large number of infants and relatively large number of “older” individuals. The Icelandic sagas rarely mention children, and the old tend not to be in viewed in a favourable light. By looking at the osteological data in conjunction with spatial layout analysis a more detailed picture emerges providing information on the possibility of these generational families and the role and perception of the young and the aged within the medieval household. This paper discusses how this unique material can add to the predominantly philological and historical discussion on the nature, makeup and social interactions of the medieval Icelandic household. It also touches on how the data may be used to create a fruitful discourse on how the “traditional” Icelandic household is presented and disseminated at a rural heritage museum. By comparing and contrasting the medieval bioarchaeological material and the historical/ethnographic research pertaining to the museum’s collections and exhibitions, a new light may be thrown on historically “inconspicuous” social groups such as the aged and the young, irrespective of time periods.

TH2-13 Abstract 07
The old and the young in the Icelandic early Christian household cemetery
Author - Zoega, Gudhry, Siggaþofur Heritage Museum, Saudarkrokur, Iceland (Presenting author)
Keywords: Bioarchaeology, Household, Medieval
Presentation Preference - Oral

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 Telekfalva (Teleac), Romania. The majority of these individuals were males dated to the 17th century and do not appear to have survived long after birth. In addition to the neonatal individuals, the remains of an elderly female individual were recovered from the same stratigraphic context. In this talk, the relationship between these individuals will be explored and tied to a growing body of literature investigating the archaeology of the Reformation.

TH2-13 Abstract 08
Interpreting Multiple Interments in Irish Medieval Burial Grounds
Author - Dr. Murphy, Eileen, Queen’s University Belfast, Crumlin, Northern Ireland, United Kingdom (Presenting author)
Keywords: funerary archaeology, relationships, skeletal remains
Presentation Preference - Oral

Burials that contain the remains of two, three or even larger numbers of individuals are occasionally discovered during excavations of medieval Christian burial grounds in Ireland. In the majority of cases the remains are those of neonatal infants – perhaps indicative of a multiple birth – in which the infants did not survive, while other examples may comprise the burial of two or more adults. In other instances a full-term foetus remains within the mother’s abdominal region and clearly died prior to delivery. Cases also arise in which a neonate has been interred with an adult female, and it seems likely that many of these may represent cases where both a mother and her baby had died shortly after delivery. Other examples have been discovered in which an adult male was buried with an infant or an older child was buried with an adult. This paper will explore evidence of multiple burials where both cohorts have been recovered together. Indeed, few scholars have addressed questions related to the interactions of infants and elders: a bioarchaeological investigation of a rural church in the community of Telekfalva (Teleac), Romania. The majority of these individuals were males dated to the 17th century and do not appear to have survived long after birth. In addition to the neonatal individuals, the remains of an elderly female individual were recovered from the same stratigraphic context. In this talk, the relationship between these individuals will be explored and tied to a growing body of literature investigating the archaeology of the Reformation.
TH2-13 Abstract 10
The search for the elderly: using osteological data to divide and join age identity
Author - Peaschek, Sabine, Bradford, United Kingdom (Presenting author)
Co-author(s) - Määranen, Nina, University of Bradford, Bradford, United Kingdom
Co-author(s) - Buckberry, Jo, University of Bradford, Bradford, United Kingdom
Co-author(s) - Armit, Ian, University of Bradford, Bradford, United Kingdom
Keywords: age identity, elderly, old age
Presentation Preference - Poster

Inquiries into age identity have only recently received attention, despite the recognition of gender identity in archaeology. Particularly elderly individuals are often ignored or treated with the assumption of a universal experience of old age. Traditional age estimation methods have failed to provide more accurate estimates to aid in the identification of aged skeletons. Individuals of 45+ years are often lumped together, ignoring any potential social differentiations in the later stages of the life course. In this study, the Transition Analysis has been utilized on the Iron Age cemetery collection of Wetwang Slack, East Yorkshire, UK, using the method's statistical approach to provide more accurate age estimates for older individuals. Additionally, data on sex and age- progressive conditions including osteoarthritis, general spinal degeneration and dental health has been collected to investigate the social identity of elderly adults in comparison to younger adults. Using a sample of 150 individuals, the Transition Analysis provided a more dynamic age profile which shows that age differences are found across gender lines and in terms of disease likelihood. Elderly females have especially stood out since they showed a substantial increase of spinal degeneration of the vertebral bodies, caries and tooth loss as compared to elderly males who show a significant decrease or stagnation in these conditions. Other females however have in common with younger adult females the severity of spinal osteoarthritis in the facet joints in comparison to the young male - elderly male grouping which is less affected. Females generally appear to be more affected by disease, yet elderly females of this population are particularly haunted by ill health which ultimately may have made their deaths and presence in this cemetery more likely. Death also is an important aspect of 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 triad 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 - Määranen, Nina, Helsinki, Finland (Presenting author)
Co-author(s) - Buckberry, Jo, University of Bradford, Bradford, United Kingdom
Co-author(s) - Armit, Ian, University of Bradford, Bradford, United Kingdom
Keywords: Adult age-at-death estimation, Life history, Transition Analysis
Presentation Preference - Poster

The absence of elderly research in life 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 (e.g. 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 perfect age indicator methods used to estimate age-at-death, we must accommodate for the variation using age ranges which often present the final interval as open-ended and beginning even as early as 45 years of age. The practice has the impact of obscuring the presence of older individuals from archaeological material, distorting our views of agency in past societies. This poster seeks to outline a series of case studies from this work and ask how we could expand this approach in the future.

Archaeological research, holistic approach, Society

TH2-14 Abstract 01
Adopt-a-Monument - Making heritage relevant to everyday lives
Author - Richardson, Philip, Archaeology Scotland, Musselburgh, United Kingdom (Presenting author)
Co-author(s) - Jones, Cara, Archaeology Scotland, Musselburgh, United Kingdom
Keywords: Adopt-a-Monument, Diverse audiences, Social impact
Presentation Preference - Oral

Archaeology Scotland's Adopt-a-Monument scheme (2011 - 2017) supports community heritage groups to take a lead in recording, conserving and promoting their local heritage. This current phase has a clear remit from the start to develop non-traditional heritage audiences, that is, those audiences who felt unconnected and unattached to their local heritage, sometimes through choice, sometimes through circumstances beyond their control. Adopt-a-Monument has sought to challenge these misconceptions by devising and providing accessible engagement opportunities which are relevant and immediate to everyday lives. We have worked with diverse audiences – from those who are transiently housed to those who have suffered from domestic abuse with very positive results. These projects are designed to put the people and participants first, and appear to have had a meaningful impact on the participants who have taken part. Yet projects such as this still produce meaningful archaeological results. This presentation will outline a series of case studies from this work and ask how we could expand this approach in the future.

TH2-14 Abstract 02
Ireland: developing partnerships
Author - Doyle, Ian, The Heritage Council of Ireland, Kilkenny, Ireland (Presenting author)
Keywords: community, Ireland, monument
Presentation Preference - Oral

Almost every townland and parish in Ireland contains a monument, be it a prehistoric burial or a ruined medieval parish church with a functioning cemetery, a medieval castle or a monument from the more recent past such as a lime kiln or old forge. The wider Irish landscape contains 120,000 known archaeological monuments which are protected by law. As a means to encourage...
Managing the archaeological heritage

Places of memory and forgetfulness. Interdisciplinary research in northern areas of the Polish Jurassic Highland

Keywords: Community Engagement, Heritage Education, Partnerships

Presentation Preference - Oral

Since its founding in 1879, the Archaeological Institute of America (AIA) has worked to create an informed public interest in the cultures and civilizations of the past through its many outreach programs. The Institute educates people of all ages about the significance of archaeological discovery and encourages community-based outreach. In 2001, the AIA hosted its first archaeological fair. The fair brought together independent archaeological organizations representing a rich array of archaeological fields to present their programs and resources to a local community in an interactive and engaging manner. Through the fair, the partnering organizations presented activities that combined the excitement of discovery with sound archaeological thinking; emphasized the idea that archaeological discoveries are resources that help us better understand how people lived in the past and how human societies and communities functioned, evolved, and grew; and informed attendees about archaeology and cultural heritage by having them participate in hands-on activities, by observing demonstrations of ancient technologies, and by talking to the experts presenting these various programs. Since 2001, the AIA has organized 23 more archaeological fairs and informed thousands of people through this popular outreach activity. The overall aims of the archaeology fairs are to promote a greater public understanding of archaeology, raise awareness of local archaeological resources, and bring together various archaeological organizations with a shared outreach goal. In this presentation, the authors will discuss how the AIA fair model was developed through feedback cycles that include evaluation, data analysis, reflection, and trial and error, how it evolved, and how it is spreading to other groups around the world. To date, 26 AIA local societies have hosted fairs and the popularity of this program as an outreach event is increasing. The fairs also serve as a common platform among other archaeological organizations across the USA as well as in Belize, Canada, Colombia, the Czech Republic, Iran, and Myanmar. This growth in popularity and implementation presents us with unique opportunities to collect and reflect upon data essential to conducting archaeological outreach around the globe.

The “archaeological path” in the interdisciplinary research in Polish Jurassic Highland

The project, called Places of memory and forgetfulness: Interdisciplinary research in northern areas of the Polish Jurassic Highland, involves carrying out research in areas that can provide impetus to multifaceted cognition the history, cultural reality, social climate, local and family memory, the heritage of generations, and contemporary identity of the inhabitants of the northern part of the Polish Jurassic Highland, i.e. in the area of five communes: Janów, Lelów, Mstów, Olsztyn, Przyrów. The project adopts an interdisciplinary perspective on the research. It brings together methods of modern cultural anthropology, and refers to the new trend in archeology focused on the study of modern times (XIX-XX centuries). Reflection these two disciplines is supplemented and verified through the knowledge of local history and the history of art.

The project distinguished three complementary research path: anthropological, archaeological, historical/archival and a common path. Cultural anthropologists use the photographs, written materials, archives, documents and available publications. For them, the source of knowledge about the past and the present is primarily oral history, heard stories from encountered people. Within the queries historical researchers collect general information about the regional history, as well as about specific places and objects, often not adequately developed in the academic literature. In the discussed archaeological path aim is to attempt to answer the following question: whether in a particular place are material elements of culture capable to confirm, deny or modify the knowledge of the past emanating from collected stories. Archaeological diagnosis was divided into two stages: reconnaissance and non-invasive research (including aerial surveys).

In the first stage of the archaeological diagnosis, archaeologists investigate the available source base and makes an initial reconnaissance of the municipality. Then divide objects (places), which have been proposed for research by anthropologists, into three categories: A - objects studied non-invasive methods, which does not require detailed documentation; B - objects studied non-invasive methods, requiring accurate documentation; C - objects studied non-invasive methods, requiring accurate documentation, subjected to additional investigation using a metal detector, drill and survey trenches. Established in the course of archaeological field research documentation (i.e. the description card of places, photographs, drawings, movable monuments: artifacts and ekofacts and their inventories, provides a database for a detailed analysis of the results of archaeological research at the level of a single place (object), as well as the analysis of a set of places in the municipality.

The project is implemented under the National Programme for the Development of Humanities funded by the Ministry of Science and Higher Education in Poland.

The role of archaeology in the rise and fall of local tourist industry.

A warning example from Finland

In June 1996 paleolithic stone tool was found in Susiluola-cave in western Finland. As the first known paleolithic site in Scandinavia it received plenty of attention in national media. Soon after the first find was revealed and reported in media, the site was visited by thousands of people and local economics was boosted by the visitors. Tourism flourished. Hats, t-shirts, food, exhibitions, bars and restaurants were named after the site. Archaeologists, on the other hand, were not happy that their precious archaeological site harnessed for a tourist business and were criticising local efforts as pathetic. Local communities were planning to invest millions for the future attractions, like Ice Age Centrum and even an opera. In meanwhile there was a growing debate among archaeologists if the finds and the site was paleolithic or not, it was also accused to be a hoax. Critics grew stronger also in the media. Debate cast a long shadow over the site and affected the public opinion. Attraction faded away and tourism collapsed. Last excavations season was in 2006. The debate concerning the authenticity of the finds and cave as a paleolithic is still unsolved.

New discoveries in archaeology get usually attention from media and public. Growing interest can turn archaeological site to tourist attraction and raise local tourist businesses. In the best cases this will lead to fruitful co-operation between archaeologists, local officials, entrepreneurs and public. It is also possible, that overenthusiastic start can lead to very disappointing end for all parties involved.

Archaeology fairs: educating the public by talking to the experts presenting these various programs. Since 2001, the American Institute of Archaeology has organized 23 more archaeology fairs and informed thousands of people through this popular outreach activity. The overall aims of the archaeology fairs are to promote a greater public understanding of archaeology, raise awareness of local archaeological resources, and bring together various archaeological organizations with a shared outreach goal. In this presentation, the authors will discuss how the American Institute of Archaeology fair model was developed through feedback cycles that include evaluation, data analysis, reflection, and trial and error, how it evolved, and how it is spreading to other groups around the world. To date, 26 American Institute of Archaeology local societies have hosted fairs and the popularity of this program as an outreach event is increasing. The fairs also serve as a common platform among other archaeological organizations across the USA as well as in Belize, Canada, Colombia, the Czech Republic, Iran, and Myanmar. This growth in popularity and implementation presents us with unique opportunities to collect and reflect upon data essential to conducting archaeological outreach around the globe.
Pirkanmaa Municipal Museum has conducted excavations on a very unique Late Iron Age / Early Medieval dwelling place during the past years. The first discoveries were made by the local people, who have been familiar with the place for decades. The site has attracted an extraordinary amount of interest from various operators: a large museum centre and a small local museum seeking to enhance its activities; a university and independent researchers with personal interest in the site and its material; local authorities wishing to develop tourism. Pirkanmaa Municipal Museum has made research material and information freely available to all, and established contacts with many different operators and experts. With a little effort from everybody, the enthusiasm is clearly spreading. But how well do the different players cooperate? Will the outcome be a large-scale exhibition, a new tourist attraction, and a new multidisciplinary research project, as planned? The paper deals with archaeological excavation project as a societal concept, which creates working interfaces between different operators and sectors of society. The current and potential role of the museum as an enabler of new kinds of activities and projects will be discussed. It is noted that transparency, publicity, contacts, and efficiency are the most important basis for cooperation, and required in managing a research project with lower level of resources than normally.

During the last EAA-meeting in Glasgow, the idea rose to re-create an EAA commission on illicit trafficking of archaeological heritage. Our round table is organised by the Working group of this commission.

Antiquities as the ‘hottest invest’ (TIME-Magazine, 12/2007) are one of the biggest problems of archaeology. Finds deriving from unauthorised excavations, metal-detecting, robberies of museums/public collections, appear on the market with faked provenience, and are legally sold. The majority of illegal/illicit finds that enter the market, seemingly entirely legally, go unacknowledged by archaeologists. Only rarely do such finds later surface and only few, like the spectacular find of the Bronze Age Nebo-dia, 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.

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.

**TH2-16**

**ILLICIT TRAFFICKING OF CULTURAL HERITAGE: DIFFERENT STRATEGIES TO FIGHT IT**

**Saturday, 3 September 2016, 11:30-13:00**

**Faculty of History, Room 329**

**Author**: Domiter, Ozren, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)

**Co-author(s)**: Črešnar, Matija, University of Ljubljana, Ljubljana, Slovenia

**Co-author(s)**: Tsirogiannis, Christos, University of Glasgow, Glasgow, United Kingdom

**Co-author(s)**: Mele, Marko, Universalmuseum Joanneum Graz, Graz, Austria

**Keywords**: illicit trafficking

**Presentation Preference**: Round table

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.

Acquisition policy- first line of defense

**Author**: Domiter, Ozren, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)

**Keywords**: consensus in collecting policies, labeling malicious collectors, raising social awareness

**Presentation Preference**: Oral

The legislation of the Republic of Croatia allows for the sale of individual archaeological finds or entire collections to museums, if the seller can prove the origin of the cultural good in the sense of family legacy or heritage. In practice, the easily obtainable confirmation of a notary on the origin of the good is the only thing required to prove the legality of such possession and to enable such sales.

The Archaeological museum in Zagreb possesses a certain amount of finds acquired in this way and which have a questionable origin, and, as the parent institution, it works on entire collections which were subsequently seized from the same collectors which could, only a few years back, make legal trade with the Museum and were legally protected by the aforementioned notary confirmation on family heritage.

What can museums do to prevent illicit trading, archaeological excavations and trafficking?

It is understandable that archaeological museums cannot change the legislation, but their social role is to point out legislative flaws, and I feel that they should individually label collectors outside the law, sellers and malicious metal detector users by highlighting finds obtained in this way in permanent exhibitions and publications, just like they highlight well-intentioned donors. But this is only a cosmetic touch up.
Illicit trafficking of archaeological heritage in Croatian post-war and transitional context
Author: Curator Đrnč, Ivan, Archaeological museum in Zagreb, Zagreb, Croatia (Presenting author)
Presentation Preference: Oral

The looting and illicit trafficking of archaeological heritage has a long tradition in Croatia, though most of these illegal activities have been concentrated in a few key centers. One of these black spots is the city of Sisak, which developed on the ruins of the Roman provincial center Siscia and has provided seemingly inexhaustible archaeological material for all sorts of dealers and smugglers since the second half of the 19th century. The attitude of professional institutions, primarily museums, towards these activities varied between the 19th and 21st centuries: from tacit approval and cooperation by purchasing illegally collected items, to ignoring the issue, and finally limited loud advocacy for legal punishment. Unfortunately, throughout this period, these institutions mostly failed to encourage a wider public debate on the issue of destruction wrought by the illicit trafficking of archaeological heritage.

What makes the Croatian socio-political context unique among Central European and Mediterranean countries are the war and post-war periods of the 1990s and 2000s. The beginning of the '90s saw a wide range of problems concerning the preservation of archaeological resources, including the direct destruction of sites and museum institutions, the looting of archaeological material by the Yugoslav Army and Serbian paramilitary units, and the mining of large areas that, in the long-term, has made archaeological sites inaccessible for research. The post-war period brought even more problems. For example, there was no institutional cooperation, except in some individual cases, during the process of clearing thousands of square kilometers of land from mines with metal detectors. We can imagine that great numbers of objects have been found but only a small portion ended up in museum collections while the biggest pieces probably entered the illegal market. A more recent problem is the phenomenon of illegal metal detecting. In some cases it is conducted by war veterans who are protected within local communities because of their contribution to the defense of the country. There are some attempts at coordination between local museums and these “enthusiasts”, but it seems that such relationships are still not clearly defined.

I hope to share my experience and specific proposals for how to win this fight by participating at this round table.

TH2-16 Abstract 02

Illicit trafficking of archaeological heritage in Croatian post-war and transitional context

TH2-16 Abstract 03

Can local people preserve cultural heritage?
Author: Munawar, Nour A., University of Amsterdam, Amsterdam, Netherlands (Presenting author)
Keywords: Conflict, Cultural Heritage Under Threat, Local People
Presentation Preference: Oral

Cultural heritage has fallen under the threat of being of damaged due to armed conflicts, and destruction has increasingly become a major part of daily news all over the world. This phenomenon is not limited to specific geographical areas, but it includes various countries such as Syria. In Croatia, for example, the elevated conflict did not avoid the museums, movable and non-movable sites and even intangible cultural heritage was either damaged or completely demolished. In this paper, the author is going to present samples of cultural heritage destruction in Syria and Iraq. Also, he will present a plan to increase the awareness of local people – as one of the stakeholders - in a way that helps to protect cultural heritage under threat.

TH2-16 Abstract 04

Metal Detecting on Dutch WWII conflict sites
Author: MA Van der Schriek, Max, Vrije Universiteit Amsterdam, Amsterdam, Netherlands (Presenting author)
Keywords: Conflict Archaeology, Illegal excavations, Metal detecting, Illicit trafficking of Cultural Heritage
Presentation Preference: Oral

Dutch academic interest in the heritage of World War II (WWII) has been limited until recently. Attention for the subject is much greater in the wider community. Unfortunately, this interest is also expressed in many illegal searches and excavations. Metal detecting is a hobby that has been notified by many archaeologists as an uncontrollable threat to the proper study of the past. During this presentation I will discuss if an effective cooperation is possible between archaeologists and metal detectorists concerning this fragile heritage. What are the benefits and drawbacks?

Many of the WWII material in the Netherlands (and abroad) is collected with metal detectors, used both by professional archaeologists and amateur metal detectorists. Without an archaeological methodology underpinning the use of the device, a metal detector can lead to the incorrect assessment of a site’s archaeological potential and even damage the site. Groups of metal detectorists and other enthusiastic amateurs have often tried to research conflict-related sites as responsibly and ethically as possible, but in previous decades the work has remained fragmental and was not always reliable. There is also a strong suspicion by professional archaeologists that films and television series such as Saving Private Ryan (1998) and Band of Brothers (2001), as well as significant anniversaries can intensify the problem.

The ultimate question to be asked is this: are metal detectorists potentially an ally or an enemy of conflict archaeology? Is their activity always destructive, or can their interest and enthusiasm be harnessed to work with professional archaeologists, to the benefit of both sides?
Future climate change is expected to raise sea levels, increase temperatures and change the overall precipitation patterns, with a potentially great negative effect on preservation conditions. How should cultural heritage management respond to these threats? In order to prepare adequate mitigation schemes, it is necessary first to know exactly what state it is in now, and what the conditions for in situ preservation are. Degradation of archaeological remains depends on environmental conditions. Which measures may be taken to mitigate the predicted climate changes and ensure continued in situ preservation of heritage sites? Should they be covered, or can changes in soil chemistry be stopped? Studies in Northern Norway are used to demonstrate impacts and possible mitigating actions.

TH2-17 Abstract 03
Climate Change and its Impact on Cultural Heritage
Author: Dalen, 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, Skjøk 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 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 Skjøk watercourse in the South of Norway is subject to all of this, and we foresee many challenges for the preservation of the cultural heritage in the area.

TH2-17 Abstract 04
A Climate Change Impact and Risk Assessment for the Historic Environment Scotland Estate
Author: Dr. Davies, Mairi, Historic Environment Scotland, Edinburgh, United Kingdom (Presenting author)
Co-author(s): Tracey, Emily, British Geological Survey, Edinburgh, United Kingdom
Keywords: Adaptation, Climate Change, Conservation
Presentation Preference - Oral
As a large public body, Historic Environment Scotland (HES) has duties under Part 4 of the Climate Change (Scotland) Act 2009 that require it to contribute to climate change mitigation and adaptation, and to act sustainably. Ministers have identified HES as a ‘Major Player’ because it has a larger influence/impact on climate change than other public bodies. A Climate Change Action Plan for Historic Scotland 2012-2017 sets out how HES will fulfil its duties under the Act. The UK Climate Change Risk Assessment 2012 identified a range of risks and opportunities that climate change may present. Many of these have the potential to impact on the historic environment. HES is key to the delivery of Climate Ready Scotland’s Scottish Climate Change Adaptation Programme, which takes it with the following:
• quantitying 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.
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 heritage and cultural resource. These surveys have targeted vulnerable areas and covered over 40% of the entire coastline. As well as assessing the geology, geomorphology and erosion risk of coastal cells, more than 11,500 heritage sites have been recorded. A prioritisation process taking account of a site’s value, vulnerability and condition this dataset and classified nearly 1,000 sites as requiring attention.

Following prioritisation, SCAPE initiated the Scotland’s Coastal Heritage at Risk Project (SCHARP), which worked with members of the local community to update and enhance this data, focusing on high-priority sites. The citizen science approach created a network of volunteers to monitor vulnerable sites in the dynamic coastal zone. As monitoring alone does not save threatened sites, SCAPE has also worked with community groups to undertake action at locally-valued sites. As preservation in situ is impractical or impossible in many coastal locations, the main aim is to rescue as much information as possible from these sites. A variety of strategies, from innovative digital recording and excavation to relocating and reconstructing sites have been deployed. The next project aim is to reference the updated data generated by SCHARP against the set of national research questions presented in the Scottish Archaeological Research Framework. This will enable us to assess the extent of the problem and 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 future susceptibility to erosion; and the result of the mapping exercise will inform future management of the coastal archaeological resource and highlight national and local priorities for further work.

This paper will present the impact of coastal processes on Scotland’s archaeological heritage, examine see methodologies employed to mitigate the threats sites face, consider the application of citizen science to the problem of coastal erosion and give case studies of some of the differing strategies used to preserve vulnerable coast sites by record.

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 individuals 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 is on ‘invisible’ subsurface remainsthat may be recorded and monitored only by intrusive or remote sensing techniques.

Identification of the range of heritage assets within river catchments and of spatial and temporal variations in the archaeological and palaeoenvironmental resource can assist study of past climatic and environmental changes, the environmental impacts of human activity and the responses of communities to geomorphic 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 by examining the riverine corridor dominated by the historic mills of the Darwent Valley in the 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 geomorphological resource, establish its potential for elucidating past landscape change and develop strategies for responding to future natural events.

TH2-17 Abstract 07
Submerging Heritage: Forecasting Climate Change Impacts to Set Preservation and Research Priorities

Author: Dr. Heilen, Michael, Statistical Research, Inc., Haymarket, United States
Co-author(s): - Atchison, Jeffrey, Statistical Research, Inc., Tucson, United States of America
Keywords: archaeological modeling, climate change, heritage management
Presentation Preference - Oral

Submerging Heritage: Forecasting Climate Change Impacts to Set Preservation and Research Priorities

TH2-17 Abstract 08
Sun, wind and rain: renewable and non-renewable resources in Wales

Author: - Belford, Paul, Clwyd-Powys Archaeological Trust, Welshpool, United Kingdom (Presenting author)
Co-author(s): - Dr. Heilen, Michael, Statistical Research, Inc., Haymarket, United States
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?

TH2-17 Abstract 09
Climate change and the effects on cultural heritage in the Netherlands

Author: - Kars, Eva, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands (Presenting author)
Co-author(s): - De Moor, Jos, EARTH Integrated Archaeology B.V., Amersfoort, Netherlands
Keywords: climate change, in situ preservation, strategies cultural heritage
Presentation Preference - Oral

Climate change is a fact. A fact is also that the knowledge of the impact of climate change on the parameters in the soil is very limited. Knowledge on the behavior of soil parameters is very important within in situ conservation programs and therefore we have to work on finding measures to adapt to climate change in relation to conservation of the archaeological heritage.
Managing the archaeological heritage in The Netherlands

Global warming is changing the alpine landscape. The retreating of the glaciers is a climatic emergency, but is taking with it - Oral
- Oral

Punta Linke 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 Linke, characterised by the presence of a teo cableways. All the original structures freed from the ice and the material found there, have been relocated. In summer 2015 more than 2170 people visited the site during 55 days of opening.

An integrated approach to sustainability: eco-cultural heritage practice at Aktöpraklık, Turkey

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 Akpulak, Bursa, Turkey, the local context of Neolithic-Chalcolithic Aktöpraklık Höyük. With the initial aim of trying to understand sustainability and heritage within the terms of the community, newly gained information can now aid in forging a symbiotic relationship between archaeological sustainability, environmental sustainability, and community sustainability. When discussing what was most valued locally, many noted that Uluabat Gölü was among the most cherished assets in town. The lake, upon which the town is located, has long been a site for traditional community festivals, and is now used as a family picnic venue for locals and outsiders alike. The lake also attained Ramsar status in 1998 for its rich wetlands and extraordinary birdwatching population. However, Uluabat Gölü was also the initial site of industrial development in town over 30 years ago, with the first factories to open 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 control 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 littling a continuing problem. Indeed, many locals noted the untapped potential of the lake-shore in Akpulak for attracting tourists, especially considering the existing tourist attraction of Golyazı island just a few kilometers away at the center of the lake. As a local source for local and community tourism, as Uluabat lake is a valuable resource for local and community tourism, and also is an important cultural site and can support additional measures for its maintenance, protection, and management, there are clear pathways here toward the parallel dialogue of archaeological heritage. Similarly, the archaeological site has been threatened by factory development and can be a valuable community and touristic resource. There is therefore significant potential for archaeologists to engage in this broader dialogue of sustainability that includes environmental resources and community concerns. By including the lake in our management strategies, with such simple measures as a litter collection campaign by the excavation team, we can make headway in sustaining a valuable natural and community resource. Moreover, we can open up our site and the region to the benefits of not only heritage tourism but also ecotourism. Consequently, with an integrated approach to not only the sustainability of heritage, but also climate, environment, and community, we can make greater strides toward success in sustainability strategies overall.

Sustainable energy versus sustainable heritage in The Netherlands

The Netherlands is not only a small country but also a country with large storage of archaeological remains dating from all periods of human activities in the Netherlands. The notion of the importance of the heritage 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.

In this part of the presentation we will discuss on the one hand the implications of the exploration of green energy, both onshore and offshore. In this section we will also discuss on the other hand the threats to the threats in physical damage. And what is the scale of the threats. But also are there possible advantages for the archaeological heritage? The combination of smart surveys and existing data could be beneficial for windfarming. The ambitions for offshore 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?

Iced heritage. First World War heritage in frozen contexts in the Alps

Global warming is changing the alpine landscape. The retreating of the glaciers is a climatic emergency, but is taking with it cultural emergency. The melting of ice is bringing to light evidence of the human presence at high altitudes from prehistory (towards) 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 we present a case study of Punta Linke (3629 metres a.s.l.) in the Ortles Clesedale group, Trentino region, Italy. It is presented. Punta Linke was one of the most important Austro-Hungarian...

While the issuing of a piece of technical planning guidance may seem like limited cause for celebration, it did in fact mark a new era in the archaeology of the UK and far beyond. Beforehand “rescue archaeology” was funded by the UK’s central government: thereafter it became the responsibility of developers. It is estimated that, in the intervening period, some 75,000 archaeological investigations have been supported by this system, recording many thousands of archaeological sites that would otherwise have been destroyed by development, without record.

The quarter-century anniversary of this change provides an opportune moment to reflect on the changes that have been wrought in the intervening period. In terms of resources directed to the study of archaeology, the revolution in understanding that this has generated and the growth in professionalism in our discipline, the change in policy has been a major success. But it has also created challenges.

This paper will review the achievements of the last 25 years and the balance of benefit and problem that now faces the archaeological profession in England.

---

**PREVENTIVE ARCHAEOLOGY, SCIENTIFIC RESEARCH AND ECONOMIC DEVELOPMENT**

**TH2-19 Abstract 01**

Rescue and Preventive Archaeology in Europe: Public Service or Commercial Activity?

**Author**: Demoule, Jean-Paul, Université de Paris I Sorbonne, Arles, France (Presenting author)

**Keywords**: development-led archaeology, Heritage management, Scandinavian models

**Presentation Preference**: Oral

While the term “heritage” traditionally refers to the transmission of property within a family, the term Cultural or Archaeological heritage refers to a national or ethnic community. Although national identities in the modern sense of the term only appeared in the early 19th century, there have for some time been two different conceptions of the State in the western world. In countries based on Roman law such as France, the State, even if it is disliked, is central to the conception of society. In “common law” Anglophone countries, and especially the USA, the State has never been completely legitimate. This view was further reinforced in the nineteen-eighties through the domination of Milton-Friedman-philosophy-market ideology and the Reagan and Thatcher governments. In a sense, there is no real society any more, only a juxtaposition of consumers, buying or not buying goods and services in a market controlled by an “invisible hand”. As we know, the State was rediscovered in 2008, when the western banks had to be rescued. Yet this ideology also partly affects the conception of Heritage. Developers are not economic agents threatening our shared archaeological heritage, who should pay for excavation to conserve it. They become “clients” who chose between different producers, in this case the private companies doing archaeological excavation. This view has had drastic consequences in terms of research, since many excavations carried out through Cultural Resource Management have never been studied or published. It also has ethical and political consequences for our conception of our common past. France offers a good (or sad) example of such an historical evolution, since commercial competition was introduced in archaeology in 2003.

---

**TH2-19 Abstract 02**

25 Years of Development-led Archaeology in England: Strengths, Weaknesses, Opportunities and Threats

**Author**: Trow, Steve, Historic England, Southampton, United Kingdom (Presenting author)

**Keywords**: Archaeology, Developer-led, Planning

**Presentation Preference**: Oral


While the issuing of a piece of technical planning guidance may seem like limited cause for celebration, it did in fact mark a new era in the archaeology of the UK and far beyond. Beforehand “rescue archaeology” was funded by the UK’s central government: thereafter it became the responsibility of developers. It is estimated that, in the intervening period, some 75,000 archaeological investigations have been supported by this system, recording many thousands of archaeological sites that would otherwise have been destroyed by development, without record.

The quarter-century anniversary of this change provides an opportune moment to reflect on the changes that have been wrought in the intervening period. In terms of resources directed to the study of archaeology, the revolution in understanding that this has generated and the growth in professionalism in our discipline, the change in policy has been a major success. But it has also created challenges.

This paper will review the achievements of the last 25 years and the balance of benefit and problem that now faces the archaeological profession in England.
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 leader 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 their implications on the understanding of archaeological research as a scientific discipline. Theoretical trends undermining the importance of humans may enhance or describe the power of EU directives as an inevitable destiny of Scandinavian archaeology. This thus makes the fact that archaeological engagement with politics on a national level is of major importance for the future of European Archaeology.

TH2-19 Abstract 05
Development in preventive archaeology in Slovenia: a view from the field

Author - MA Novšak, Matjaž, Arhej d.o.o., Ljubljana, Slovenia (Presenting author)
Keywords: preventive, Slovenia
Presentation Preference - Oral

Slovenia has rather long tradition of archaeological heritage protection, dating from the early 1850 when the Imperial/Royal Central Commission for the Research and Protection of Artistic and Historic Monuments was established in Vienna (at that time Slovene provinces belonged to the Austrian Empire). Since then, Slovenia has passed through great political changes to become independent country in 1991 with the end of former Yugoslavia. More than 150 years of legislation in heritage protection is an important factor also when considering the development of preventive archaeology today. General institutional framework and doctrine of protection was for decades tied to the Austrian tradition (even after 1918), and Slovenia kept probably the best organized and efficient heritage service in former Yugoslavia with well developed regional network of heritage protection institutes. Legal transformation of old “Yugoslavian” 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 soon (1992) implemented - after international monitoring. Here, it is possible to see two major and parallel trends in changing the system of protection: a) positioning archaeology (and its preventive role) in obligatory procedures in spatial planning and b) emergence of private market of archaeological services. For the period 1994-2008 one could speak of a hybrid system of organization of archaeological preventive works with public (regional) heritage institutes officially directing large scale excavations and surveys (on motorway sites mostly), but hiring private SME for the actual job in the field. Existing public institutions simply could not meet the requirements for fast and efficient archaeological preventive research. In 2008, situation changed again, when new Cultural Heritage Act (which introduced the term preventive research) limited the issuers of protection conditions and recommendations (i.e. heritage institutes) to monitoring of archaeological field research. The actual research was undertaken by SMEs or by public instructions which have a right to compete in the market (e.g. museums, academic institutions).

There is also another and important issue associated with this act. Prior to 2008, it was the heritage institutes which negotiated the extent and also finances of the research, and have legal powers to force the developers to accept certain measures), while, afterwards, there were possible direct negotiations between developers and preventive researcher. Such liberalization of negotiations had in many cases negative consequences, especially in the context of recent economic crisis, which in Slovenia affected the most the investments in spatial development and construction, and consequently, also all ‘players’ in preventive archaeology.

TH2-19 Abstract 06
In search of a common space: (sharing) the spatial data of preventive archaeology

Author - Nurra, Federico, Sassari, Italy (Presenting author)
Co-authors: Moscone, Anna, INFRAP, Paris, France
Keywords: GIS, Preventive archaeology, Webmapping
Presentation Preference - Oral

According to the Article 7 of the “European Convention on the Protection of the Archaeological Heritage”, the parties have to ‘make or bring up to date surveys, inventories and maps of archaeological sites’ and ‘to take all practical measures to ensure the drafting, following archaeological operations, of a publishable scientific summary record before the necessary comprehensive publication of specialised studies’. Furthermore, the Article 8 of the same “Convention” commits the parties ‘to facilitate the national and international exchange of elements of the archaeological heritage for professional scientific purposes’ and ‘to promote the pooling of information on archaeological research and excavations in progress’.

TH2-19 Abstract 07
Preventive archaeology in current Slovakia

Author - Dr. Michalik, Tomas, Cultural Heritage Consulting Ltd. / Slovak Association of Archaeologists, Trenčín, Slovakia (Presenting author)
Keywords: archaeological heritage, preventive archaeology, Slovakia
Presentation Preference - Oral

Cultural heritage and its protection is regulated in the number of laws in Slovakia. Basic mentions in the Constitution refer to individual laws, regulating cultural monuments, historic sites, archaeological heritage, museums, galleries, libraries, archives, artistic works or intangible heritage.

From the point of view of archaeology, archaeological heritage, its protection and management, the Act on Protection of Monuments and Historic Sites Nr. 48/2002 Col. is the most important law, fully regulating the preventive archaeology as a whole. Administrative competences are applied by the Slovak Republic and its 8 regional branches. They monitor and supervise all activities with potential impact on the archaeological heritage, then they decide on necessity of conducting of research, its conditions and time frame as well as on offences. Their legal position in the Act is very strong, but their personal capacities (usually there are 2 or 3 archaeologists for one region) are low.

Since the last important amendment of the Act in 2014, there is express provision defining and regulating the preventive research. Previously there was no definition 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 licenced organizations, representing museums, private companies (14), universities (6), civil association (3), town organization (1) and state (2, but important actors – Archaeological Institute of Slovak Academy of Sciences and Monuments Board of the Slovak Republic) in Slovakia. Although museums is the most numerous group, they focus especially on local, less difficult projects. Majority of excavations is conducted by the private sector, what is interesting fact as the first licence for private company was granted only in 2007. Independently on the quantity or quality of archaeological finds, they must be stored in the museum after the finish of the research and elaborating of documentation.

The economic crisis caused substantial consequences in the preventive archaeology sector, but the impact on the practice was probably not so hard than in other countries with different legal situation and research tradition.

TH2-19 Abstract 08
Preventive archaeology should not be reified!
The case of the history of Swiss motorway archaeology

Author - Jobin, Paul, Institut d’archéologie, Les Bois, Switzerland (Presenting author)
Keywords: History, Preventive Archaeology, Switzerland
Presentation Preference - Oral

The current economic crisis affects preventive archaeology because of the decrease of investments in the civil engineering sector and the public austerity measures. In other cases the functioning of preventive archaeology is simply prejudiced by new public
management initiatives. Such deleterious effects can also affect countries which are less affected by the economic crisis. Thus we have to develop strategies to maintain or preserve preventive archaeology whilst its establishment has not been considered as accomplished. At the same time, through the crisis of preventive archaeology, new debates appear about the relation between science and heritage.

Finally, we can ask these questions: What do we really have to maintain? What exactly should we accomplish?

This presentation proposes an analysis of the historic development of preventive archaeology in Switzerland since the end of the 1950s. The particularity of preventive archaeology in Switzerland is its early development under the impetus of a long-term motorway construction programme 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 “tiny European Union” in the centre of Europe, making it an interesting case for comparative study.

Through this historic analysis we will see that preventive archaeology is the result of a continuous and irregular evolution of different practices and numerous processes. They come from different origins: methodology, science, technique, administration, politics and economics. Consequently, the practice of preventive archaeology has been planned through different organizational and political mechanisms. Each political entity responsible for its application. Therefore, preventive archaeology is an international ideal model to be established. On the contrary, preventive archaeology consists of several paradigmatic principles related to heritage preservation. Moreover, these principles can be applied very differently from one political state to another.

In conclusion, if we accept that the current state of preventive archaeology is not an end in itself that need to be protected, but that it constitutes a paradigm of research concerned with the preservation of cultural heritage, we should then recognise that the manner in which preventive archaeology is organised can be regularly re-negotiated within civil society so that it is adapted to the evolution of the research context and, last but not least, to our scientific ambitions.

TH2-19 Abstract 09
The Archaeologies of different times and contexts, as seen from the east part of Western Europe
Author - Dr. Staabulich, Harald, Heritage Office Saxony, Germany, Dresden, Germany (Presenting author)
Keywords: after 1990, East Germany, large scale projects
Presentation Preference - Oral

After 1945 many new large infrastructural works were necessary in all parts of Europe but only very few development-led large scale projects were accompanied by appropriate rescue excavations. The major political changes around 1990 had a similar impact on economy resulting in a huge amount of new construction activities, first mainly in the east part of Europe. But from the point of view of the archaelogical 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 development 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. Helen, Michael, Statistical Research, Inc., Haymarket, United States of America (Presenting author)
Co-author(s) - Coakes-Tellovo, Richard, Statistical Research, Inc., Redlands, United States of America
Keywords: archaeological research, economic development, preventive archaeology
Presentation Preference - Oral

In the United States, preventive archaeology is governed largely by Section 106 of the National Historic Preservation Act, which requires consideration of the heritage 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 active projects 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 at Statelab to conducting research within two different regions of the Western United States – coastal southern California and the desert Panapunia 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
Author - Mark, Jan, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic (Presenting author)
Co-author(s) - Unger, Jiri, Institute of Archaeology of the CAS, Prague, v. v. i., Prague, Czech Republic
Keywords: Czech Republic, Legislation, Preventive Archaeology
Presentation Preference - Oral

The currently effective heritage law in the Czech Republic entered into force already in the year 1987. Even though the law was created in the environment of socialist state, it was designed in a very progressive way. Despite the fact that the law was not significantly revised since it had become effective it still fulfils the majority of obligations that the Czech Republic undertook to do by joining the Valetta convention in 2000.

However, lawmakers in the year 1987 cannot envision the fundamental political as well as social transformations that occurred in the Czech Republic two years later, in the year 1989. The changeover to a market economy as well as significant increase in building activities brought much higher demands on conducting rescue archaeological field works. This progress has resulted, among other things, in increase in number of applications for issuing new licences entitling to conduct the archaeological field work. Besides museums and universities, private companies appeared. So far altogether 110 public as well as private companies possess the licence to conduct the archaeological research. Implementation of the principle “the polluter pays” has caused that the licenced organizations are using the rescue archaeological field work as one of their major financial sources.

The Institute of Archaeology of the Czech Republic holds in organisation of the Czech archaeology a privileged position. The Institute is the only organization entitled to conduct archaeological field work directly by the law. Furthermore, it has the right to significantly influence the issuing of a new licence to conduct archaeological research (the power of veto), collect information regarding the ongoing archaeological field works, archive Excavation reports and, to a certain degree, to control their quality. However, the effective law does not stipulate any evident standards of archaeological research and, thus, its quality varies very 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
Author - Querol, A., Spain, Complutense University of Madrid, Madrid, Spain
Co-author(s) - Castillo, A., Complutense University of Madrid, Madrid, Spain (Presenting author)
Keywords: Interpretation, Land planning, Mediation
Presentation Preference - Oral

Around 30 years ago we started researching the topic of archaeological heritage management in Spain and the necessity to adopt preventive measures concerning archaeological studies in the context of civil works. We used the adjective “preventive” for the archaeological research conducted 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 archaeological, emergency archaeological, as a result of preventive policies, etc. We argue once again here, the idea of Preventive Archaeology as a planned strategy. Land classification (in an urban sense), including its archaeological potential, is the first and main step. In our model of preventive archaeology, it is possible to combine research, development infrastructures and the contributions of the Malta Convention. Our proposal is based on the European standards on Environmental Assessments (Strategic Environmental Assessment Plan and Environmental Impact Assessment for projects) to establish Reserve Zones (“un touchables”) and Caution Areas (for interim protection of construction projects) in the territorial planning of European territories. The implementation of this model will not only achieve a decrease in the number of archaeological rescue or emergency interventions, but will also allow to design archaeological research based on its knowledge, without it being the decision of the public or private civil work.
Today, the challenge is to implement the model more (there are some examples in Spain, but very few), and to improve it to include other kinds of measures such as mediation techniques in front of social conflicts with interventions or adequate interpretation systems for this type of archaeological heritage that usually is more difficult to spread than other archaeologies.

TH2-19 Abstract 13
Preventive archaeology from 2010 onwards in Hungary – legal background and the reality

Author: Bőzdí-Emrzej, Katalin, Government Office of Budapest Capital, Budapest, Hungary (Presenting author)
Co-author(s): Várhely, Katalin, Gyula Forster National Heritage and Asset Management Centre, Budapest, Hungary
Keywords: development-led, legal system, reforms
Presentation Preference: Oral

Hungary has signed the Malta Convention among the first countries (1992), built the Convention’s main principles already into the first cultural heritage law (1997-2001) issued after the political turn (1989), nonetheless the Convention itself just later (2000) became part of the national legislation. Preventive archaeology – in modern terms – appeared around the 1990s and quickly became the dominant way of excavating, the number of development-led excavations was the highest around 2006.2010. The history of this “evolution” from a few aspects was already discussed by archaeologists mainly in foreign publications, conferences (e.g. EPAC, DAC, OAB) – unfortunately such a debate is still missing on national level, the characteristic elements of this process, the special interest of the different actors have not yet been analysed. In this paper we focus on the period from about 2010 till now, the period that is characterised by a radical reorganisation of heritage management under the aegis of the overall government-reform, the shutdown of the INRAP-like field service (established in 2007). The recent changes (including the accreditation of excavation institutions and firms) foster the building up a free-market like system in case of development-led large scale excavations; legal “reforms” were introduced in favour of better predictable excavations and investments and for the “benefit” of the citizen. We try to confront theory and practice to outline the problems that should be resolved.

TH2-19 Abstract 14
French preventive archaeology in a European context

Author: Salas Rosenbach, Kai, French national institute for preventive archaeological research, Paris, France (Presenting author)
Co-author(s): Pion, Patrick, French national institute for preventive archaeological research, Paris, France
Keywords: development-led, European, preventive
Presentation Preference: Oral

Since 2001 French state decided to create a national institute to lead preventive archaeology. With more than ten years of exercise, through crisis and political changes, the Institute evolved and learned from these changes. Looking across Europe, French model still looks singular both from its accomplishments and failures. This presentation, comparing European situations with the French one, consists of a critical analysis of the French example. From this base, it proposes some common lines to be discussed at a European level. Each of these lines seem to take us to a central starting point question: why is preventive archaeology done in our countries and how can we collectively answer this question?

TH2-19 Abstract 15
Is Preventive Archaeology viable in time of crisis?
The Greek experience

Author: Kotsakis, Konstantinos, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)
Presentation Preference: Oral

The paper presents the state of preventive archaeology in Greece within the context of the most serious economic and social crisis since the end of the Civil War in 1949. Archaeology in Greece is traditionally and legally closely involved in the State apparatus, a reality which is enhanced by the corporatism of the state archaeologists. However, the urgency of the economic crisis hitting Greece hard since 2009, and the recently added huge refugee crisis is putting a dangerous strain on archaeology.

Is state archaeology going to survive the crisis?

TH2-19 Abstract 16
Is preventive archaeology compatible with scientific research?

Author: Dr. Deapa, Pascal, Inrap, Amiens, France (Presenting author)
Keywords: Economic Crisis, Preventive archaeology, Scientific Research
Presentation Preference: Oral

Preventive archaeology is now, in Europe, certainly the main source of archaeological data, about 90% in some countries, and each European country has a more or less strong legislation about archaeology and cultural heritage. A common point of these laws is the possibility of a commercial archaeology beside an academic one. Therefore many private companies have emerged especially since 2000. But preventive archaeology has been strongly affected by the global economic crisis since 2008.

In this paper I will examine if preventive archaeology is efficient in a scientific point of view, not only in a cultural heritage point of view, in Western Europe and especially in France.

TH2-19 Abstract 17
Birth and infant death of preventive archaeology in Italy

Author: Dr. Guermandi, Maria Pia, Istituto Beni Culturali, Bologna, Italy (Presenting author)
Keywords: archaeological heritage safeguarding, Preventive archaeology, Public administration reform
Presentation Preference: Oral

The consequences of the crisis - far from being outdated - led to a profound rethink of the methodological, social and institutional framework in which archaeological discipline has operated in recent years on a European level. For a large majority of EU countries, this framework had its political and legislative basis in the Malta Convention of 1992.

A profound change has occurred in the 24 years since the Convention, particularly in the past 8-10 years, which have witnessed a rapid change in the framework of reference from multiple points of view.

The philosophical-political context has changed: with the beginning of the new millennium, the policy documents concerning cultural heritage, on both a European and international level, have made a radical shift away from the previous approach focused on objects, sites monuments towards a conception of heritage founded upon the demands, expectations, interests and needs of the populations.

Almost simultaneously, a gradual, but extensive redefinition of the spaces of public intervention in all sectors has taken place throughout Europe. This has made it necessary to redesign the institutional framework of archaeological practices in many EU countries.

The situation in Italy is at the same time specific and exemplary: the grotesque delay in the ratification of the Malta Convention, which took place only recently in May 2015, reflects how far behind legislation is in general when it comes to archaeology. There is no specific legislation and archaeological practices are governed by directives that are highly ambiguous, when not downright conspiratorial, archaic, manifestly insufficient and ridiculous and pointlessly restrictive (e.g. the limitation of prior verification procedures to public works only, the only case in Europe). The draft of the guidelines on preventive archaeology, which we have been waiting for since 2006, do not appear likely to fulfil the expectations of an entire sector that has been struggling for years amidst a deep economic crisis affecting all the players involved: from developers to professional archaeologists, from universities to the Ministry of Cultural Heritage.

In this situation the Italian Ministry of Cultural Heritage undertook since 2014 a reform of its internal structure. A new step of which has been undertaken in January 2016.

This new decree radically changes the structure of the protection and conservation Offices. Archaeological Superintendencies lose their autonomy and come unified with Landscape and Arts Superintendencies. As regards the preventive archaeology, the synergy between the Ministry reform and the revision of the Procurement Code could mean the totally deregulation of this sector with a devastating impact on landscape and archaeological heritage safeguarding.

Despite the different national contexts, these are phenomena of a transnational nature. They must thus be addressed on an European level, at least from a cultural and political perspective, if we are to have a hope not only of grasping the underlying reasons for the changes that have occurred and are still underway, but also of coming up with some proposals for orienting the evolution of future processes in a direction favourable (or less unfavorable) to our archaeological heritage.
Generally, commercial archaeological units in the United Kingdom perceive field archaeology in general; and osteological, zoological, ceramic and of course geophysical analysis as tried and trusted good things. The basic dig it collect what is there as finds, wash the finds and have experts look at them and give dates and functions for the various layers and a neat interpretation can be applied satisfactorily to all. 

Now of this of course relies on good scientific technique not to comparison 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 where and what archaeology is on the site with minimal intervention, but in combination with geophysical analysis can establish the best and most cost effective way to investigate and evaluate it. This is not to say the numerous 30m or 50m x 2 m trenches across a site on a consultant whim doesn’t work but I will argue that a targeted environmental and scientific preliminary investigation will lead to a more cost effective and beneficial method of examining our historic environment to the benefit of all.

...
the 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, Turizm Ljubljana, and designed a tourist programme together. We also included local entrepreneurs and artists in some other programmes and exhibitions. Owing to these changes and endeavours, we had a 25% growth in foreign visitors to the Park. However, we did experience tensions and misunderstandings due to differences in understanding of the archaeological heritage as a source, in ways of exploiting it, and the scope and size of the possibilities. We think those conflicts and solutions employed make a good starting point for a debate, and a very useful experience for planning the development of Archaeological Park 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 NIGRVM PVLLVM opened its doors at April 15th 2016.

TH2-20 Abstract 06

Unexpected experiences

Author - Hylt-Madsen, Lone, Museum skanderborg, Skanderborg, Denmark (Presenting author)
Co-author(s) - Dissing, Nina Bangsbo, Municipality of Skanderborg, Skanderborg, Denmark
Co-author(s) - Purup, Marianne, Visit Skanderborg, Ry, Denmark

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. Pawlita, Michal, Adam Mickiewicz University, Poznań, Poland (Presenting author)
**Keywords:** archaeological museums, Poland, sensor tourism

**Presentation Preference:** Oral

Whereas previous studies in tourism promoted vision, current research claims a holistic approach to sight, hearing, smell, taste and touch in order to develop effective communication with visitors and create conditions to enhance tourist experiences. Consequently, sensory aspects of tourism have recently been in focus as an important dimension in the process of facilitating positive tourist experiences. Among others, also the archaeological museums embrace resources rich in multi-sensory stimuli that are more often utilized in the planning and marketing of appealing tourist experiences.

This paper aims to present the “sensory site” of archaeological museums in Poland. The key axis of considerations is choosing 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 Diacre”, as well as innovative trends such as those as realised in the “World of the Slavs and Vikings” or “The Slav Myth”. It is not a systematic analysis, but shows certain noticeable trends in archaeology museums: in the presentation of the artefacts, in educational projects, including the introduction of reconstructions, reenactments, museum lessons, etc. It also addresses the issue of a modern technology offering a visitor a different perspective on the confrontation with archaeology and monuments.

It also rises some crucial questions, for example, how contemporary archaeological museums support the multisensory nature of tourist experiences? If the measures undertaken are to make the exhibited artefacts more attractive, or whether they are competing with it? Are the new ways of exhibiting and presenting knowledge about the past drawing society closer, encouraging aesthetic experiences with relics of the past, the discovery of ancestors and increasing scientific knowledge? Or do they turn attention away from the items on display? Finally, what is the real purpose of the “sensory” development of contemporary museums?

---

Museums in Central Asia: The Role of Cultural Institutions in disseminating Information

**Author:** Dr. Jarosz, Katarzyna, University of Logistics, Wroclaw, Poland (Presenting author)
**Keywords:** digital divide, museum, tourism

**Presentation Preference:** Oral

The countries of Central Asia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, or Uzbekistan have great tourist potential both for foreign visitors and companies that 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 scholars and scientists of the Medieval world, through the dominance of the nomads, the Russian empire, the Soviet era. If we add the beauty of nature, landscapes, cultural, archaeological and heritage unique attractions, hospitality of people, arts and crafts of the region, it is easy to understand why this region can be considered as a unique and very attractive tourist destination. However, one common denominator in all the studies is that all these countries, to a different degree, lack proper infrastructure and have not developed proper mechanisms to attract more potential visitors and tourists. One of the most often quoted sentences in the literature on the tourism industry is that information is the lifeblood of tourism. It has been clearly demonstrated in numerous studies that museums have direct impact on a country’s economy. The aim of this paper is to analyse it, and to what extent, the countries of Central Asia are competitive in promoting their national heritage. It aims to verify, to what degree historical and archaeological museums in the countries of Central Asia are able to adopt effective strategies to facilitate access to information for potential tourists in order to attract them. The issue of competitiveness of the museums on the digital level and the issues of digital divide is the most important one. Providing digital access to the exhibitions, information on museums has been analysed. Within the context of collaboration of the cultural heritage management research group of the Complutense University of Madrid and according to the interest shown 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 convergences between the scientific discourses and those generated by the touristic sector so that proposals of improvement can be made for the social transfer of archaeology through these means and at the same time, improve the touristic experience related to the appreciation of the research efforts behind these places and that justify their conservation and opening to the public.
Managing the archaeological heritage and respect, and, whenever possible, fulfilled in a whole for the benefit of all included participants. Museum constantly strives to offer a broad frame of possibilities, ideas and cooperation models in which such needs of local community), and considering plans for future spatial research and thereby connected presentation of zones round the site of the Sr. Trojca 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, Velodri Nature Park, Archæological 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 and, through a contemporary and innovative approach, to enable for the creation of a kind of museum in the open which would, inside its invisible walls, inseparably connect and communicate the rich natural and cultural heritage of the entire Starigrad area in an interesting and inspiring way.

The Museum, as the initiator of the idea of this sort of research-presentation multidisciplinary symbiosis, would use its research work not only as a key step in the collecting and interpretation of scientifically-based data, but also as an exceptional presentational potential, enabling all interested persons to see the site, witness archaeological excavations via the best interactive presentation method – personal experience. Even when local community and stakeholders are not aware of, or any reason, able to communicate their needs, the Museum constantly strives to offer a broad frame of possibilities, ideas and cooperation models in which such needs of local community and local stakeholders are detected, recognized and outspoken and, after all, always treated with special attention and respect, and, whenever possible, fulfilled in a whole for the benefit of all included participants.

This synergistic, general-heritage and interinstitutional approach includes all three functions of heritage-related institutions (research, preservation and communication) for the overall benefit of the local community and society as a whole.
For most archaeologists, archaeological heritage management concerns major construction works, such as motor- and railways, airports, etc. This idea, implicitly present in the Valetta Convention, doesn’t make sense anymore today. Big public works are getting rarer and rarer in Northwestern Europe. New data on all types of development, which have a destructive impact on archaeological sites, are getting available and demonstrate that these big public works represent less than 10% of archaeological destruction. In France, an inventory of all destructive earthworks was made. It appeared that housing and agricultural works are the two main destructive factors, far ahead industrial and linear (roads, etc.) works which are far less important. A lot of new types of land development, often linked with the green economy, are also important. Preventive archaeology of this mass of small scale earthworks is something wholly different from archaeology of large infrastructure works. It should be adapted at all levels, from the theoretical, the methodological and administrative level. In the long term, its public impact and sustainability are however much better.

TH2-21 Abstract 03

An Archaeology of Stains. Sustainability and Responsibility in Facing Painful Heritage

Author - Zalewska, Anna, Institute of Archaeology and Ethnology of Polish Academy of Sciences, Warsaw, Poland (Presenting author)

Keywords: archaeology of recent past, painful heritage, Stains Black and White

Presentation Preference - Oral

While thinking about the 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 altering (E) 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 soon will become the subjects of the archaeological studies. They are the creations of both the righteous (war, legitimate etc.) and frightful (war, gory etc.) events. In general, the first category can be seen as recognised and widely described historically, while the second is still something described in understatement and hesitations. It also induces growing public interest and can be described metaphorically as the ‘stains’ - being obliterated or unspeakable. Such an understanding can be described as the ‘white stains’. That which is associated with the painful can be described as the ‘black stains’.

In my presentation I will expose that dimension of the concept of sustainability of archaeology, on which as the crucial can be seen the potential of 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’ with the worth attention phenomena of the ‘enduring materiality’ and - of the growing readiness of archaeologies to be socially useful when dealing with the ‘traces of the discarded’ or unspeakable. To do so, I will refer to the specified cases of archaeological inquiry from Poland. To exemplify some of the nuanced arguments, the outcomes of the ongoing project titled ‘Archaeological revival of memory of the Great War. Material remains of the life and death in trenches of the Eastern Front and the condition of the ever changing battlefield in the region of the Raewa and Bzura rivers’ will be presented. That transdisciplinary project deals with the unique assemblages simultaneously neglected and marked by wars/sensitive.

Additionally, in relation to the current calls in the human sciences for a “return to things”, “residual turn”, “traces turn”, seen equally important as the still growing public needs for “a visible, visible, tangible, touchable past” I will elaborate the reasons for which the Gaedamar question on the ways in which knowledge and its effects are affiliated remains central. I will also discuss why material remains, especially those excluded and those difficult to be grasped in words, situate archaeology in position of the discipline necessary or/ and hardly for the release from or acquaintance with the enduring ‘stains’.

TH2-21 Abstract 04

Contemporary archaeology - a response to the crisis and social approach towards heritage

Author - PhD Kajda, Kornelia, Institute of Archaeology, Krakow University of Technology, Krakow, 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 explainability and transformation of what archaeology is thought to be today. It is no longer just a discipline which deals with 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 be sustainable must respond to the problems and needs of the contemporary world and that it cannot be a closed academic discipline understood only by them. Therefore, noticing that the strict binary oppositions of nature and culture, heritage and rubbish, preservation and ruination as well as past and present are questioned nowadays, archaeologists must have adapted their research questions to the changing world. Thus some of them turned to the field which strongly refers to the living communities, their memories, experiences and needs, and which relates to the problems of the contemporary world (e.g. migrations, ecology, war, industrialisation) – the so-called ‘contemporary archaeology’.

In my presentation I would like to present contemporary archaeology as a field which, in Poland, aroused from the societal expectations and is a way of responding to them. I also would like to describe strategies of experiencing the past and heritage that are undertaken in the contemporary societies which strictly relate to contemporary archaeology and research questions which this field ask (here the Polish perspective will be especially stressed). Therefore, topics of the meaning and value of heritage in the contemporary world, as well as, social needs towards our discipline within the context of contemporary archaeology will be raised here.

TH2-21 Abstract 05

Galicia and the Basque Country (Spain): Sustainable Archaeology in small sustainable countries?

Author - Professor Xunco, Ayen, University of Basque Country, Vitoria Gasteiz, Spain (Presenting author)

Co-author(s) - García Rodriguez, Sonia, University of Basque Country, Vitoria Gasteiz, Spain

Keywords: Community Archaeology, Spanish Archaeology, Sustainable Archaeology

Presentation Preference - Oral

Spanish Commercial Archaeology lived its golden age between 1990 and 2007. This activity was closely linked with the current model of economic development in Spain, based on speculation and enormous, both private and public constructive activity. The strongest sector for the Evaluation and Correction of archaeological impact served to absorb the skilled labor force formed by the new generations of archaeologists from the universities.

The economic crisis of 2008 had dire consequences for the Spanish Archaeology. The State paralyzed research, universities were left without resources, scientists emigrated abroad and the archaeological market virtually disappeared by paralyzing the construction boom. Although this fact has hurt the archaeological profession, in these seven years have also emerged processes 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 of archaeology 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 new 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 a country’s oldest population and representation of Europe. It is one of the poorest and most deprived areas of Spain, its countryside and its industrial structure are disappearing and survives thanks to European subsidies. After decades of failed policies of sustainable rural development in these years of crisis local governments and civil society are the Community Archaeology a useful tool for the enhancement of Heritage. This reality has opened a new market for archaeologists of Galicia: Mestrell. The Basque Country, who lived since the Industrial Revolution in the late nineteenth century, is the richest region of Spain. The political weight of Basque nationalism has resulted in the strengthening of public policies that encourage the development of local production. Basque politics supports research to enhance and internationalize its economy. Such as livestock, wine production, fishing and tourism, Cultural Heritage is a strategic sector. In turn, today, the development of public policy for reports on the political violence of the twentieth century has opened up a whole field of work for the Archaeology of Contemporary Past becomes a tool for sustainable development (and peace).

TH2-21 Abstract 06

Knowing and understanding the public: a step before planning sustainable heritage managements

Author - 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)

- Oral

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 a part of a theoretically informed, socially engaged and carefully researched multidisciplinary project which combines archaeology, history, ethnography and social theory. This can be achieved:

- if we investigate the social and political conditions within which attitudes to the past have been formed and within which notions of local, national, or world heritage have defined;
- if we engage with social problems in the present, and
- if we contribute to the formulation of a vision for responsible growth in the future, by means of a dialogue with the local communities and the policy makers responsible for the study and management of the archaeological heritage in the area.

The discussion will focus on Laconia, a region of southern Greece. The argument proceeds in four stages:

1. The exploration of local perceptions of the past by means of a programme of archaeological (visual) ethnography. Special attention is given to educational programmes for school children presented in the local museums and archaeological sites, as these provide the foundation of local perceptions of archaeology and archaeologists.

2. A discussion of the main problems faced by the local communities, the endemic causes of exclusion and underdevelopment as well as the further deterioration during the current financial and political crisis.

3. The formulation of a vision for sustainable growth and for alternative forms of tourism (e.g. agrotourism, ecotourism, cultural tourism, etc.), and the need for the creation of collaborative structures which can unleash local creative potential and act as a platform for the exchange of ideas.

4. 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 Synnestved, 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 expected result from the project will be an increased sense of location and an increased project will take place during spring 2016 involving the children the area, the housing company and others. An aim of the project is to make a place for storytelling and pedagogical activities for the schools and the inhabitants in the area and to make archery a part of the local society for a sustainable future.
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, public memory and memory institutions. The theme also invites archaeologists who participate in Horizon 2020 projects related to section “Europe in a changing world – Inclusive, innovative and reflective societies” and COST action “Individuals, Societies, Cultures and Health”.

Practical skills training in European Archaeology: survey results

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.

Presentation Preference - Oral
TH3-02

FROM THE COLOSSEUM TO PALMYRA. APPROPRIATION AND OWNERSHIP OF ARCHAEOLOGICAL HERITAGE IN A GLOCAL WORLD

Saturday, 3 September 2016, 09:00-13:00
Faculty of Philosophy, Room 209

Author - Ooi, Mai, University of Heidelberg, Heidelberg, Germany (Presenting author)
Co-author(s) - Ravello Lami, Martina, University of Amsterdam, Amsterdam, Netherlands
Co-author(s) - Cellia, Elisa, Museo Civico Etrusco Romano di Trevignano Romano, Trevignano Romano (Roma), Italy
Co-author(s) - Pirritucci, Alessandro, University of Rome La Sapienza, Rome, Italy
Co-author(s) - Pecchi, 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 archeology and State focusing on nationalism, and demonstrating that there is no such thing as non-political, value-free archeology. Nationalism stimulated the very creation of archeology as a science and has informed the organization and infrastructure of archeological knowledge. However, more recent trends focus on archeology’s relationship with Modernity, insisting on the concept that archeology has to be viewed as cultural product. As every cultural product, archeology as a discipline is inherently a practice of cultural appropriation. Archeologists perceive themselves as officially entitled by the society to use archeological material as resource for understanding the cultural past in pursuit of the “truth”. The vision of the past emerging from analyzing the dynamic nature of appropriation of the past as an intentional process - whose mechanism affects social change – is that uses of the past have to be considered as pointers to competing visions of the future at both individual and group levels. Scientific archeology also adopts such a vision. The debate on the notion of appropriation and ownership, the role of archeology and propaganda, Daesh, endangered heritage

This session wants to address:

- comprehending the role of archeology in European policy at both State and European Union levels (e.g. in identity building, ethnic conflicts, etc.).
A hot topic of debate in the agenda of Institutions and associations in the field of both tourism and cultural heritage, the present-day administration of the Colosseum and other archaeological sites of Rome may represent a meaningful model for analyzing the value acquired by heritage and archaeology in contemporary Italian society. The Italian word “valorizzazione” (enhancement and promotion), in the mind of lawmakers, is meant to connect the intrinsic value – historical, archaeological, cultural in a wider sense – of the heritage with the economic return of its exploitation. During these recent years, though, in the wake of mass tourism, marketing strategies (“exploitation”) are growing in importance with respect to the cultural issues which should appeal visitors (“valorizzazione”), for instance, temporary exhibitions of questionable scientific contents are promoted as a way to increase entrance fees, while panels and other educational tools seem to be inadequate to the audience needs. As a result, in other terms, is there the strong risk of a mere economic use devoid of real cultural contents and intentions? On the other hand, what does the general public (in this case study meant as foreigner tourists in Rome) perceive when visiting Rome? Is the Colosseum simply a “must-see” destination or a real “cultural experience”?

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 hypothesize for historical spiritual independence. A “[...] purity [...] that has to do with the personal; that which is interior or immanent; that which is one’s experienced relationship with the sacred; and that wisdom or knowledge which derives from such experiences (Heelas, 2001).”

In this paper I maintain that Albanian analysts are fashioning a post-communist academic discourse in favor of the construction of a unique vernacular transcendental tradition. To highlight the above-mentioned casuistry, I reconsider the present day focus on Illyrian mythology as informative of distinctive heritage and ancient Greek syncretism.

To this aim, I contend that efforts for the creation of a discursive platform on vernacular traditions are paradoxical due to the fact that they make the case for a new utopia, similar to the Albanian experience of what Schumpeter asserted to be a Marxist religion. The latter made reference to the everyday life, while constructing evidence for historical pasts that recalled its ideology and values (Qendro, 2014). Moreover, a focus on the vernacular is purported as inclusive of Albanian “metaphysical believers (Heelas, 2011)” into global postmodern discourses on faith, while it provides a rationale for dissociative “apotthic respiritualization (Haynes, 2011).”

In the last decades, thanks to stratigraphic excavations and associated pottery analysis, many Italian opus poligonale monuments have been correctly dated to the Republican era, deconstructing thus the idea of their belonging to the Archaic period or even earlier. Alatri, a well-known archaeological site close to Rome, is a paradigmatic example of new scientific methods proving wrong old chronologies and theories. The polygonal walls of the city and its acropolis, indeed, date to the 3rd century BC proving wrong earlier. Alatri, a well-known archeological site close to Rome, is a paradigmatic example of new scientific methods proving wrong earlier chronologies and theories. 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.
OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY: FOLLOWING THE ARIADNE THREAD

TH3-03

Thursday, 1 September 2016, 09:00-13:00
Faculty of History, Room 218

Antiquarians in the 21st Century: Opening up our data

Author - O’Riordan, Emma Jane, Society of Antiquaries of Scotland, Edinburgh, United Kingdom
Co-author(s) - Osborne-Martin, Erin, Society of Antiquaries of Scotland, Edinburgh, United Kingdom (Presenting author)

Abstract 03

The Society of Antiquaries of Scotland has been an active publisher of Scotland’s history and archaeology since 1792; the Proceedings of the Society of Antiquaries of Scotland (PSAS), has been the primary journal dealing with Scotland’s past in its British and European context since 1851. Publication in PSAS has often been by many archaeologists as the ‘end’ of the research cycle: excavation is followed by publication, and the process is complete. However, there is increasing awareness that the final report alone does not tell the whole story, and many readers would also like to examine raw data. In 2001, the Society created a new, fully peer reviewed, freely available online journal, Scottish Archaeological Internet Reports (SAIR), so was an early adopter of Open Access in an archaeological context. SAIR was intended to provide a new, lower-cost publication outlet for detailed archaeological reports; over the last fifteen years it has evolved to include the publication of many different types of projects – including large-scale surveys, gazetteers and conference proceedings – which would not be possible or desirable to publish in print for various reasons. The Society also runs the Scottish Archaeological Research Framework (SARFF). Launched in 2012, this collaborative project brought together experts from a range of disciplines to compile a peer-reviewed summary of our archaeological knowledge up to that point and agree where future research should be directed. The entirety of Scottish archaeology was split into nine panel reports, all of which are available for free download from the project website or can be viewed on the wiki-style website itself. As such, it is the first of its kind in archaeology. The Society is contemplating how best to take PSAS, SARFF and SCAFF forward in an Open Access world. Our audiences are increasing, both in number and in variety. There have been over 400,000 downloads from Society’s publication archive held by the Archaeology Data Service (ADS) since 2011, and over the past three years this number has seen over 262,000 page views. And yet these final reports are only the tip of the archaeological data mountain. As an archaeological publisher, if we aspire to the true aims of Open Access, we should be making the original data available for re-use, data mining, and new interpretations. But how can these aspirations be carried out in practice when the data is so vast and varied? As a small independent organisation, we must look to collaboration. How best to do this? One possibility is drawing from the models created by computer scientists and scientific publishers more used to dealing with raw data rather than ‘coffee-table books’. However, making the data available is not only a technological issue – there are already data downloads available in parts of SARFF and SAIR, for example - but a cultural one. Many archaeologists are cautious about openly sharing raw data and we must consider how best to reconcile the needs of authors and remaining true to our own aims of truly open knowledge.
Beyond the Pale: grey literature as a method of publication

Author - Dr. Evans, Tim, Archaeology Data Service, York, United Kingdom (Presenting author)

Keywords: grey literature, open access, publication

Presentation Preference - Oral

archaeologically closely related regions usually studied in isolation of each other. The data will be made available open access online ensuring compliance to standards in data production for data sharing (metadata and mapping) and interoperability with related initiatives. The resources that form the basis for the new dataset include digital resources (site- and pottery- and bibliographic- databases in different formats) and also analogue resources such as unpublished manuscripts, site gazetteers and a pottery collection. The resources result from different projects that span over the last four decades and where different terminologies, typologies and chronologies have been used. In the project we use various methods to integrate the data: creation of a new site database, mappings to CIDOC CRM and digitizing of finds (3D pottery models) and attribution with relevant metadata.

Data are currently published online on SITAR Project’s WebGIS portal (http://webais.archeositarproject.it/webgis/login.php), where they can be freely consulted.

SITAR Project, partner of the Ariadne project from 2013, is completing in the early months of 2016 the analysis of data related initiatives. The data will be made available open access online ensuring compliance to standards in data production for data sharing (metadata and mapping) and interoperability with related initiatives.

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
data aggregation infrastructure includes ingestion, normalization, transformation and validation processes that mainly focus on the homogenization and cleaning of heterogeneous data. A portal is usually employed to present this information to the end users and is met with limited success due to the vast information contained. In order to increase the quality of services that are provided to end users, the European funded project Ariadne (http://www.ariadne-infrastructure.eu) aims at integrating this data by modelling the underlying domain and providing the technical framework for automatic integration of heterogeneous resources.

TH3-03 Abstract 09
Linked Open Data Approaches within the ARIADNE Project

Author: Dr. Wright, Holly, University of York, York, United Kingdom (Presenting author)
Keywords: ARIADNE, Linked Data, Open Data
Presentation Preference: Oral

ARIADNE is a four-year EU FP7 Infrastructures funded project, made up of 24 partners across 16 European countries, which hold archaeological data in at least 13 languages. These are the accumulated outcome of the research of individuals, teams and institutions, but form a vast and fragmented corpus, and their potential has been constrained by difficult access and non-homogenous perspectives. ARIADNE aims to bring together and integrate existing archaeological research data infrastructures, so researchers can use these distributed datasets in combination, and in new ways. This paper will give an overview of the progress of the ARIADNE project, focussing on efforts to create a shared infrastructure into which metadata is gathered, and a portal to allow cross-search of this metadata. To this end mapping work has been carried out to facilitate searching across space, time and subjects, using Linked Open Data (LOD). This work represents LOD best practice by incorporating existing international initiatives such as the Getty Art & Architecture Thesaurus, and contributing to emerging best practice initiatives like PerioDo.

TH3-04 Abstract 01
Medieval archaeology in Europe. Chronologies, topics, perspectives

Author: Dr. Citter, Carlo, University of Siena, Siena, Italy (Presenting author)
Keywords: Europe, medieval archaeology, Mediterranean
Presentation Preference: Oral

Europe is a small peninsula at the western corner of Eurasia. However, its history is fragmented. There is a general agreement to consider middle ages the period between AD 500-1550, though this is only an agreement among scholars. Terms like late antiquity is meaningless in northern regions, while late Iron age is out of the time span for the Mediterranean. Coherent chronologies have been adopted in each region, but it is not easy to relate all of them one another. Topics are very different too. Christian organisation of towns and countryside is a key issue for the Mediterranean since the 4th c., while in Scandinavia or the Slavic territories it occurs much later. The making of the medieval town has to relate with the Roman past within the borders of the former empire, while it has different roots outside it. Material culture is different too. The impact of stone architecture is different both from a chronological and geographical point of view. Literary sources are almost absent for many regions up to the Carolingians, while for others they are abundant since the late Roman Age.

Thus, it seems that medieval archaeology in Europe should resign itself to be an unfledged mass of data within a time span which has nothing to do with reality. On the contrary, it is clear that the end of the Roman west, the fragmentation of the Mediterranean, the emerging countries of the northern and eastern regions allowed a closer relationship even at a long distance. Muslims were in contact with the Vikings, the Saxons with the Mediterranean, people moved to trade, and not only for this. Archaeologists often focus on regional studies, while they should also stress these long distance connections.

TH3-03 Abstract 10
ArchaeologistsEngage. Thinking Big - We Can Change Archaeology

Author: Tibbetts, Belinda, Exeter, United Kingdom (Presenting author)
Co-author(s): Schenck, Tine, ArchaeologistsEngage, Oslo, Norway
Co-author(s): Haspbroth, Emily, Southwest Archaeology Ltd, South Molton, United Kingdom
Keywords: Engagement, Public, Social
Presentation Preference: Poster

ArchaeologistsEngage encourages engagement between archaeologists and the public. We offer a platform for public engagement and dialogue through social media and a range of events. In January we launched Challenge 2016, an exciting call to archaeologists to undertake one new form of public engagement to improve the direct dissemination of our research to members of the public.
TH3-04 Abstract 02
Islamic archaeology: theoretical and methodological issues

Author - Asst. prof. Taşkani, Çınar, Abdülhamit Gül University, Kayseri, Turkey (Presenting author)
Keywords: Islamic archaeology, theory, methods
Presentation Preference - Oral

This contribution wishes to present an appraisal of the discipline of Islamic archaeology and to analyse and discuss its development and the current trends in the discipline.

The origins of Islamic archaeology span a little more than a century and its strong initial relationship with the history of art and monumental architecture shaped its early development; only in the 1980s Islamic archaeology could gain its independence from these fields of study and start facing new challenges such as carving its place within the field of Islamic studies and looking for common approaches with other fields of archaeology. In the last thirty years Islamic archaeology has thus witnessed a great development both in discoveries and interpretation, where it came to apply a long durée approach to the study of the material culture and the methods of monastic archaeology to the castles of the Middle East. Like other historical archaeologies, Islamic archaeology has often suffered from a sense of inferiority to the written records and has only recently begun to overcome it.

One of the first and foremost articles dealing with the theoretical issues of the discipline was published at the end of the 1980s (Insoll, 1999) and since that moment publications taking a stake of the discipline and its theoretical frameworks have grown (see for example Walsme, 2004 and 2013; Milwright, 2010; Tonghini 2014).

The presentations aims at identifying the influences different branches of archaeology had on Islamic archaeology and at comparing the research approach of Islamic archaeology with archaeologies from other regions and periods. One of the objectives of the contribution is also to discuss the contemporary and urgent challenges of the discipline. In fact, I believe that Islamic archaeology is essential to help build dialogues between Islamic countries and other countries, particularly Europe, and needs to be recognized as a fundamental element to achieve a comprehensive knowledge of the development of the Mediterranean zone. Finally, present weaknesses of the discipline and future directions will also be debated; particularly, I will examine the role of digital technologies in the field of Islamic archaeology.

TH3-04 Abstract 03
Ottoman Mediterranean and its archaeology between two worlds

Author - Dr. Dikiaia, Fahri, TED University, Amara, Turkey (Presenting author)
Keywords: Ottoman Archaeology, Symbolism, 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 Mediterranean, especially in the Levant. But, this legacy and its chronological contexts protect a local and differentiated knowledge, also. Ottoman symbolics and cohabitation created a synthesis between its central and peripheral clusters. The archaeological data and its distribution in the Ottoman Mediterranean indicate Ottoman policy and its colonization effects on the social and economic structures. This paper aims to discuss Ottoman knowledge and its archaeological clusters to identify Ottoman Mediterranean and some problematic and debatable validity in the current modern and nationalist archaeologies.

TH3-04 Abstract 04
Monastic Archaeology: sources and methodology in the Mediterranean landscapes

Author - Dr. Shingiray, Irina, University of Oxford, Oxford, United Kingdom (Presenting author)
Keywords: Byzantine architecture, Byzantine monuments, archaeology, methodology
Presentation Preference - Oral

This paper seeks to contribute to the debates regarding chronological and spatial incongruities which exist between the realms of the Islamic, Byzantine, and Medieval archaeologies, and will propose a theoretical framework which helps to reconcile and integrate those fields through archaeological common ground. The basis for this archaeological model is the site of Darband in the Eastern Caucasus – the fortress that marked the frontier between the world of the Christian culture of the Late Antiquity / Byzantine Empire, the Islamic Caliphate, and Medieval North represented by the indigenous people of the Caucasus and the Steppe Nomads. Besides being a fortress and the wall built to separate the above-mentioned worlds for defensive 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, invoke 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 at the site of Darband. “The Production of Space” by Henry Lefebvre (1991) outlines three main categories of space: perceived (physical) space, conceived (mythical, conceptualized, encoded) space, and lived space (the space of political negotiation between all categories, including archaeological “spaces of representation”). In my paper, I will argue that this theoretical framework can be useful in order to reconcile different archaeologies at the common ground where physical space and knowledge are shared as a part of everyday life.

TH3-04 Abstract 05
Early Middle Ages as social conflict: local communities in post-Roman Iberia and the Mediterranean

Author - Doctor Tejerizo, 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 intertwined 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 Žižek claims, this “ethnic revival” is not casual but closely related to the crisis of the late capitalism and used as a shield against postmoderism traumas. Early Middle Age archaeology, as a scientific field (following Bourdieu’s characterization) has not been isolated from this process and in some cases, has not only misinterpreted the archaeological record, but also has been the basis for racist politics in Western Europe. One of the consequences of this is the blurring of Early Middle Ages as a period of high social conflict among different social strata, beyond ethnic parameters. In this paper, we will try, in the first place, to make a construction 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-Emire. For that purpose, some concepts from Marxist and Critical History Archaeology (Erik Ansen, Magdalena Tocci) 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 06
Beyond hierarchy: Common property rights & migration as a factor in rapid change in material culture

Author - Professor Oosthuizen, Susan, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: common property rights, governance, migration
Presentation Preference - Oral

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 started to spread in 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 us return a multi-layered historical perspective with distinguished and integrated levels.
Sudden and almost complete changes in material cultural are, in archaeological contexts, frequently ascribed to migration. An inauspicious example is the almost complete replacement of Romano-British artifacts by those from north-west Europe in many parts of England in the first few decades of the early fifth century AD. The paper begins by offering a brief critique of current models for explaining such rapid change in which migration is given a leading role: military cohesion among migrant groups; their apparent resistance to assimilation; replacement of existing leaders by high status immigrants; and ethnogenesis, the deliberate framing of political ideologies aimed at rationalizing territorial control. It notes that all elements of such models take a "top-down" view, in which access to power is predicated on status and wealth within hierarchical political structures, and where cultural change is explained in terms of leadership by an elite.

The paper moves to an alternative, experimental, "bottom up" approach to investigating rapid changes in material culture. It begins with the premise that all aspects of a stable, sustainable, agricultural economy depend on property rights over land. Access to and exercise of property rights enable an individual to make a living, offer the opportunity to generate a surplus or acquire goods, and create opportunities for personal interaction with elites through tribute, gift-giving or taxation. An analysis focused on the practical management of agricultural property rights offers the possibility of a "bottom up" perspective on cultural change that anchors abstractions about social relations into the everyday realities of making a living.

The argument does not discount the possibility of cultural change as a result of variations in access to resources, wealth and status whether or not as a result of migration. Nor does it challenge the existence of political and social hierarchies. It argues, instead, that the complementary contribution of collective traditions should not be neglected in explaining transformative cultural change. The paper concludes by suggesting the need for more complex, more dynamic, perhaps even epidemiological, models to explain change in the human past.

TH3-05 Abstract 01
Nature: Cultures Heritage, sustainability and feminist posthumanism

Author - Associate Prof. Christina, Fredengren, Stockholm, Sweden (Presenting author)

Keywords: Environmental Humanities, Heritage, Posthumanism

Presentation Preference - Oral

This paper makes use of feminist posthumanism to outline how a range of heritage policies, practices and strategies, partly through their base in social constructivism have a clear anthropocentric focus. Not only do they risk downplaying materiality, but also a number of human and non-human others, driving a wedge between nature and culture. This may in turn be an obstacle for the use of heritage in sustainable development as it deals with range of naturalized others as if they have no agency and leaves the stage open for appropriation and exploitation. This paper probes into what heritage could be in the wake of current climate and environmental challenges if approached differently. It explores how a selection of feminist posthumanisms challenge the distinction between nature/culture in a way that could shift the approach to sustainability in heritage making from a negative to an affirmative framing.

TH3-05 Abstract 02
Time, Colonialism and the Intricacy of Relational Practice

Author - Professor Cornell, Per, University of Gothenburg, Västra Frölunda, Sweden (Presenting author)

Keywords: Americas, Colonialism, Relationalism

Presentation Preference - Oral

In the context of destructive and fictive colonialism, questions of interaction and relationism are crucial but also intricate and require subtle means of analysis. In the advent of European Colonialism in the Americas, the encounter is largely one of human exploitive and conflictual interaction, but also a question of humans encountering, relating to new bacteria, new animals, new vegetation. Opening for a fresh approach to these questions require a set of theoretical and methodological tools, which includes thoughts from feminist writers like Braudt. But there is also a need to critically assess certain aspects of relationist approaches, like those developed by Haraway or Barad. The general frame must allow for an intricate of time, for varied times and processual developments operating in different fields and in different spheres. Revisiting certain ideas from Marx, perhaps partly surprisingly, can prove productive and stimulate new approaches to questions of historical process, class and exploitation.
TH3-05 Abstract 03

Where is the Feminism in Archaeology?

Author - Tonge, Joanna, University of Southampton, Poole, United Kingdom (Presenting author)

Keywords: Feminism, Gender, Survey

This paper 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 complex 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 ‘apologetic’ gender archaeology or a post-processual interest in experience, embodiment and phenomenology. Can we then assume that feminist archaeologists have 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 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, for example. Archaeologists have responded to this paradox in varying ways, none satisfactory. One is by not engaging with the question of whether the past acts as a political mirror for the present. A second is by adopting a “see no evil” approach where we contemplate only positive aspects of the past. A third is to fit the past within the three traditional narratives (historical lack of change means natural inevitability, progress towards utopia, and progress towards dystopia). All of these rely upon an underlining, 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 archaeological panorama, this Congress has integrated other innovations, likewise a growing number of women in archaeology. Situation confirmed in the following decade, when the number of women dedicated to archaeology has been more evident. Toward that several political factors that characterized the important ’60s, influenced largely by changes observed in culture and cross-border mentality, as witnessed young graduates Portuguese archaeologists academically in other European countries.
Wilson Duff (1975: 12) opens his book images stone b.c.: “Images seem to speak to the eye, but they are really addressed to the mind. They are ways of thinking, in the guise of ways of seeing.” Duff went on to suggest that the choice of stone as a medium for seeing-thinking was a move designed to place thinking outside of time – and thereby into a world of being (cf Marshall 2000 World Archaeology). In a recent article in the Canadian Journal of Archaeology (2019), Natasha Lyons and I argued in a similar vein for an understanding of objects as spatial ‘tellings’ materialised in non-linear, non-narrative and therefore a-temporal forms. Our common project with Duff is that objects/images are arguments concerning possibilities for being and becoming, not representations of beings. Using whalebone clubs as my forum, I show in this paper how the Nuu-chah-nulth people of Vancouver Island, British Columbia, create object ‘tellings’ (ways of thinking) which set out a moral or ontological geography. Moral travel through this geography constitutes a process of becoming which produces difference (cf Marshall 2012 Feminist Theory). Simple moral travel produces everyday growth and change. But when more fundamental transformation is sought, through engagement with great power or wealth, moral travel is demanding and dangerous. The transformative possibilities of moral travel are calibrated in effort and risk.

---

**TH3-05 Abstract 08**

**Contributions of social anthropology to the knowledge of the status of adorned bodies in archaeology**

**Author:** Dr. Belard, Choisi, University of Southampton, La Roche sur Yon, France (Presenting author)

**Keywords:** adorned body, gender, archaeology, social anthropology

**Presentation Preference:** Oral

This paper proposal intends to present the first elements of a research project taking an interest in the visual effect of adornments, the social status of the body and gender ideology. The main issue is to determine to what extent the social and symbolic status of the body can be understood in death archaeology by means of ethnographic record. Firstly, through different ethnographic data, it is possible to observe how adornments are used to emphasise the different parts of the body according to their aptitudes and their symbolic meanings.

Secondly, the social categorisation and gender ideology related to adornments can be specified in view of social anthropology and in taking into account of the notion of intersectionality. Three questions are fundamental: who are the wearers of adornments, why do they wear them and for whom? Furthermore, which aspects of adornments are used by several human groups as a medium to create social categorisation and which other aspects can be individualized? Finally, how bodies and movements of men and women can be controlled by means of adornments and to which aspects of gender ideology of each society this can be linked? Therefore, this research project aims to investigate to what extent social anthropological knowledge can allow us to better understand the bodily and symbolic use of buried adornments.

---

**TH3-05 Abstract 09**

**Was there always a man and a woman? On flexibility of sexuality in historical Islamic Iran**

**Author:** Prof. Papiş Yazdi, Leila, Meyshahr, Iran (Presenting author)

**Co-author(s):** Dezhamkhooy, Maryam, University of Heidelberg, Heidelberg, Germany

**Keywords:** flexibility, Safavid Iran, Timurid Iran, sexuality, bisexuality, homosexuality

**Presentation Preference:** Oral

Being propagated repetitively, the general image of contemporary Middle Eastern Muslim women is comprised of feminine bodies raped and/or divorced to the ones who cry more than speak, feel more than deduct and are always fighting to be controlled by a very patriarchal society. Such an image has been seriously produced based on a very recent dichotomy between genders, women and men. Violent dominant men/dominated women.

How much these images can be generalized to the past? During the last decade, the propagated image of Islamic sexuality has been very much challenged by historians. Referring the miniatures, sculptures and wall paintings, the performativity of gender during medieval ages can be very differently described from the recent propagated one.

Chronologically, by the entrance of Islam to historical Iran the change of the solid Zoroastrian dichotomic concept of men/ women begun while afterwards the invasion of this region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghaboosnameh [from 10-17 centuries A.D] introduce the only real love, the love between two men or two women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghaboosnameh [from 10-17 centuries A.D] introduce the only real love, the love between two men or two women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghaboosnameh [from 10-17 centuries A.D] introduce the only real love, the love between two men or two women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghaboosnameh [from 10-17 centuries A.D] introduce the only real love, the love between two men or two women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative. Very famous pieces of literature such as Ghaboosnameh [from 10-17 centuries A.D] introduce the only real love, the love between two men or two women begun while afterwards the invasion of the region by central Asian Turks made bisexuality normative.

Analyzing pre-modern Islamic Shi’ish, it is obviously depictable that there were always ways to put these vast ranges of sexual activities out of punishment frameworks. Archaeologically speaking, such a distinctive gender performativity has been materialized in the remained material culture related to the body such as wall paintings, pottery motifs and miniatures. In the first glance, the flexibility of sexuality would be observed within the manner applying by the painters who have visualized the bodies, there are very few distinctions between the bodies of men and women freely acting, practicing sex and everyday life while there were several words addressing several types of sexuality in the literature.

In this article, the authors try to investigate material culture dated to Timurid and Safavid era [15-17 centuries A.D] through them they will be able to establish the very different historical framework of gender performativity and the flexibility of sexuality in Timurid 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

Grave inventories which deviate from the norm of particular cemeteries are very popular in interpretations about prehistoric social structures. Special cases are 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 “Högljägeren”. Bronze Age or in Late Iron Age burials near the oppidum Mancingh 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 actual similar Early Iron Age women an active role in trade networks around the Alpes. But independent of interpretations the archaeological data are always the same – female burial with a mixture of local and non-local jewery. 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.
Interpreting the late Iron Age record in Gaul

Author: F. Fleury, Béatrice, Bruxelles, Belgique (Presenting author)

Late Iron age studies, by the very nature of the main written source, “Caesar De Bello Gallico”, our modern western view of war, and periods of unrest and culture change, as well as the trend towards the interpretation of records through male directives of research strategies, mostly lead to geopolitical and economical models of culture change, and by a self-feeding process, overlook the clues enabling archaeologists to identify in the records, and therefore in future record, the missing links leading to alternative interpretations.

Indicative are the titles of the majority of classical archaeological monographs, “Le pas des legions”, “Roman frontiers” (or non-defined genders given the neutrality of linguistic terms “ the god of the Celts”, “Les Cельtiques”, “Celtic art”.

One could argue that in the process of synthesizing the new discoveries, in the long term historical interpretation, one might still easily miss the presence of females in archaeological contexts, and therefore their role in society, with implications in the long term historical interpretative framework and therefore in the building of contemporary ideology.

Indeed, interpretation of the status and role of females in society of a given period would rely on texts, inscriptions, figurative representations, burial types, as no indices appeared in northern Gaul LIA contexts, and their tangibility in other areas, on tenuous indications in earlier contexts. There, the arid nature of the archaeological witness, in a traditional interpretative schema leads to conclude that lack of evidence is proof of absence, however this is no proof of non-existence, and criteria could be inferred from wider context in order to find missing links in further research.

For the purpose of sociological interpretation, bolder authors refer to classical historical records, as well as later testimonies, so that sociological discourse oscillates between myth and reality: mentions in later Celtic societies of great Britain, or poetical works, and occurrence of alternative roles, exemplified in the short episode of the revolt of Boudicca and her daughters, their subsequent destiny (and maintenance in the status of the dominated).

I wish to underline here that I am not writing in the perspective of “feminist archaeology”, but of the overall stream of French new archaeology.

Newer archaeological discoveries of MLT and LLT in Gaul may enable us to build up means of identifying clues to define missing links so as to rediscover sociological context and interpret the body of record in periods of acute cultural changes in a different light.

In this paper, some new archaeological data from Gaul enable the distinction of criteria to re-examine older records, and develop by way of contextual, spatial, functional, stylistic, regional and chronological comparison, as I have already devised in previous work, approaches or indices to identify the presence/absence of women in the body of records. Tied to a wider historical framework, and related to other links, this could allow further interpretative writing on causes for culture change, but separated from pure data analysis. Copyright 14 February 2016
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 envisions community as polity. But Hitchcock (2007), Goodison (1998) and Chapin (2001, 2004) have pointed to another element in palatial culture that suggests different ways of envisioning community, the intentional inclusion of the natural world in the organization and appointment of the palaces - orientation toward natural elements, the presence of rough baetis, and similar features point in this direction. This paper argues that these allusions are more than just referential. Instead they reveal the way in which the life history of community on Crete always was enmeshed in the landscape read most broadly, and that parallel to the shifting economic and political structures seemingly centered on significant architecture there was a broader community woven into the environment. Thus when communities dispersed at the end of the Neolithic around 3100 BCE many populations affectively took with them the caves they had occupied and used for burial relocating these as built circular stone tombs or tholoi and eventually reusing as house tombs providing the new center for social interaction. Animal vases in the tombs further attest to this linkage with nature. The gradual accretion of villages and towns in the territory around the tombs yielded at the transition into the Middle Bronze Age ca. 1590 BCE to a reconfiguration of populations around central court complexes accompanied by the re-assertion of the centrality of the natural world in the peak sanctuaries which arguably served as the center of a larger community that paralleled those admitted to the first so-called palaces, and associated with the increasingly urbanized tombs. Rather than fixed at particular sites community on Bronze Age Crete was fluid and defined by the presence of natural features - by vistas, rocks and caves - and visible as well in the penetration of animals and birds and plants in all media. Three case studies will consider this alternative to looking at the making and breaking of community.

Keywords: community, Crete, landscape

Abstract 03
A Minoan Meshwork: Gathering the Natural World into Community

Author - Prof. Millner Boney, 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 envisions community as polity. But Hitchcock (2007), Goodison (1998) and Chapin (2001, 2004) have pointed to another element in palatial culture that suggests different ways of envisioning community, the intentional inclusion of the natural world in the organization and appointment of the palaces - orientation toward natural elements, the presence of rough baetis, and similar features point in this direction. This paper argues that these allusions are more than just referential. Instead they reveal the way in which the life history of community on Crete always was enmeshed in the landscape read most broadly, and that parallel to the shifting economic and political structures seemingly centered on significant architecture there was a broader community woven into the environment. Thus when communities dispersed at the end of the Neolithic around 3100 BCE many populations affectively took with them the caves they had occupied and used for burial relocating these as built circular stone tombs or tholoi and eventually reusing as house tombs providing the new center for social interaction. Animal vases in the tombs further attest to this linkage with nature. The gradual accretion of villages and towns in the territory around the tombs yielded at the transition into the Middle Bronze Age ca. 1590 BCE to a reconfiguration of populations around central court complexes accompanied by the re-assertion of the centrality of the natural world in the peak sanctuaries which arguably served as the center of a larger community that paralleled those admitted to the first so-called palaces, and associated with the increasingly urbanized tombs. Rather than fixed at particular sites community on Bronze Age Crete was fluid and defined by the presence of natural features - by vistas, rocks and caves - and visible as well in the penetration of animals and birds and plants in all media. Three case studies will consider this alternative to looking at the making and breaking of community.

Keywords: community, Crete, landscape

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 knowledges, 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 disfranchising 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 processualist approach to death rituals articulating the micro-politics of funeral and the broader historical circumstances that shaped the lives of communities.
Theoretical and methodological perspectives in archaeology

TH3-06 Abstract 05
Entanglements of pottery acquisition strategies in the Mycenaean palace at Pylos

Author - Zeman, Piotr, Adam Mickiewicz University in Poznan; Institute of Prehistory, Poznan, Poland (Presenting author)
Keywords: Entanglements, Mycenaean culture, Pylos, Pottery production, pottery acquisition

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) - Boulden, Kate, University of Cambridge, Cambridge, United Kingdom
Keywords: community, landscape, locality

TH3-07 Abstract 01
The Place and Importance of the Working Parties & Committees in the EAA

Author - PhD Yilmaz, 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

TH3-07 Abstract 02
Experiences from the Farming, Forestry and Rural Land Management Working Group

Author - Dr. Holyoak, Vincent, Historic England, London, United Kingdom (Presenting author)
Keywords: common agricultural policy, European Commission, rural
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 WP 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 far too little support 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.

TH3-07 Abstract 05

Working Party (WP): Integrating the Management of Archaeological Heritage and Tourism

Author - Williams, Annemarie, Amersfoort, Netherlands (Presenting author)

Keynotes: 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 unsorted in an “archaeological vacuum.”

A WP could form a link to the outside world, a mouthpiece on certain topics that are important for archaeology but relevant to other disciplines as well. A WP can make connections and control the topic within the expanding organization of the EAA, it is clear that with the growing number of sessions and papers the scientific and local organizing committee don’t have a clear oversight. It would be interesting if the WP’s could form two-way bridges where information on specific topics can be brought outside our EAA bubble, and other ideas and thoughts can also reach us, always with the archaeological interest at heart.

Our WP explicitly invites participation and input from all stakeholders that are involved in archaeological tourism and strongly support a multi-disciplinary approach. In an ideal world the archaeologist plays a central when an archaeological site is developed for touristic activities. This is however not always the case and in order to achieve change we will invite other stakeholders that aren’t EAA members to join our WP and participate in our meetings and sessions and the EAA members of this WP will take part in other conferences and prominently become part of the decision making processes that concerns archaeological tourism.

TH3-07 Abstract 06

Public archaeology is a martial art

Author - Dr. Richardson, Lorna-Jane, University of Umeå, Umeå, Sweden (Presenting author)

Keynotes: Politics, Public archaeology, UK

Presentation Preference - Oral

Public archaeology in the UK deals with politics, power and inequalities, and aims to explore the impact of archaeology in present day social and political landscapes. Can this work in practice during a period of unprecedented cuts to government budgets covering heritage issues? This paper will explore how our work affects political decisions and whether archaeology be used as an instrument of policy and politics. Can political activism be part of our professional work, and is this ethical?

TH3-07 Abstract 07

EAA and Politics: role and potential of the non-permanent Working Parties and Committees

Author - Dr. Huglin, Sophie, Newacastle University, Basel, Switzerland (Presenting author)

Keynotes: Politics, Professionalisation, Working Groups

Presentation Preference - Oral

Apart from the scientific exchange EAA’s Annual Conference always has been also an important opportunity to discuss and engage in political topics. For groups who want to meet regularly and work on long term issues the EAA offers the possibility to form a Working Party or Committee. Currently the EAA has more than ten active Working Groups (http://eaa.org/working_groups.htm), 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 too. Here some of the most active members are to be found, but at the same time the potential of these unofficial bodies is far from fully exploited. We should discuss on very practical terms how Working Parties could contribute more to the expertise needed in the EAA Board and how they could meet effectively at the Annual Meeting, but moreover also work continuously during the rest of the year.
UNTOLD STORIES: TECHNOLOGY, LINEARITY AND COMPLEXITY IN ARCHAEOLOGICAL THOUGHT

Thursday, 1 September 2016, 14:00-18:30
Faculty of History, Room 217

TH3-08 Abstract 01
Technology and the Arrow of Time
Author: Dr. Duckworth, Chris, University of Leicester, Leicester, United Kingdom (Presenting author)
Co-author(s): - Govantes Edwards, David, Universidad Nacional a Distancia, Spain
Keywords: archaeological theory, archaeometry, technology
Presentation Preference - Oral

We argue that evolutionary assumptions are still prevalent in many areas of archaeological research, regardless of whether or not they are made explicit. While there is undoubtedly a place for such models, they can also have negative effects on our understanding of the past, driving us to frame change in a developmental sequence and omitting those parts of the picture which do not accord with this 'single story'.

This is particularly true, we suggest, of the archaeology of technology. A key problem is that we have no clear archaeological definition of 'technology'. In modern English, the term generally applies to the cutting edge of a given period; that is, to novel practices or products only. Longer-lived technologies, particularly those involved with animal-rearing and food production, are rarely considered in the same breath as pyrotechnologies, despite their often global impact.

Without doing away with narrative approaches altogether, we can nonetheless benefit from a more complex and thorough handling of the archaeology of technology, which acknowledges the diversity of past practices and leads us to a closer understanding of where and how the material and the social worlds meet.

TH3-08 Abstract 02
Embracing variability as a mode of analysis
Author: Dr. Kohring, Sheila, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Keywords: chaines operatoires, improvisation, pottery
Presentation Preference - Oral

Archaeology excels at locating patterns in the distribution of material culture and interpreting the behavioural practices associated with these artifacts. However, in order to do this, we are often required to homogenise data towards 'norms' that will fit macro-scale narratives about prehistoric lifeways. Often the variability underlying the complexity of social networks is ignored when, in fact, it could provide insight into the dynamics of how change at the macro-scale occurs. This paper explores how analysis of technical variability can be beneficial in assessing how knowledge is networked within communities and how it articulates with wider social and technological traditions. In particular, it uses Late Neolithic, Copper Age and Early Bronze Age pottery technology to assess how the analysis of variability (rather than the LACK of variability) opens up questions on how social change occurs and becomes sedimented within local communities.

TH3-08 Abstract 03
Documenting the microscale of pottery technology in large samples
Author - PhD candidate Papaiouannou, Anna, Aristotle University Thessaloniki, Thessaloniki, Greece (Presenting author)
Co-author(s) - Kitsakis, Kostas, Aristotle University Thessaloniki, Thessaloniki, Greece
Co-author(s) - Urem-Kotou, Daphni, Demokritos University of Thrace, Komotini, Greece
Co-author(s) - Chondrogiani-Melaki, Aneli, Ephorate of Antiquities of Kozani, Kozani, Greece
Keywords: forming techniques, Neolithic technology, pottery
Presentation Preference - Oral

Regarding the forming of pottery from Greek Neolithic sites, it is broadly characterised as handmade. Apart from this general statement about the technology of Neolithic pottery, little discussion has been made of the specific shaping techniques.

The poster will present the ongoing study of forming techniques on large samples of pottery from two early Neolithic sites in Western Macedonia, Greece, namely Varamenoi Goumen and Rodoti Palembala, which are dated at 6430-5670 and 6220-5900 BC respectively. The techniques are studied macroscopically, based on attributes of the vessels' surface, section and fracture that are considered diagnostic traits of the different primary shaping practices. The aim is to explore the vessels' building in detail within the pottery assemblage of each settlement and to compare the techniques used by the potters of the two sites. The technological traits will be compared to the common typologies of pottery based on vessel form and ware.

The study so far has shown the variability within and between the assemblages in the microscale of performing the basic forming techniques, but also the common practices used in the neighbouring sites. So, the focus on the details of the shaping techniques give us insight into the communities, enriches our understanding of the Neolithic potters and their practical knowledge, and points to a more complex picture of Neolithic technology.

TH3-08 Abstract 04
Lost and Found: The Complexity of Find Contexts and the Technology of Bracteate Breakage
Author - Prof. Wicker, Nancy, University of Mississippi, OXFORD, MS, United States of America (Presenting author)
Keywords: metal technology, Migration Period, Scandinavia
Presentation Preference - Oral

Find locations of Scandinavian Migration Period (5th- and 6th-century CE) gold pendants known as bracteates are typically identified as burials or hoards. One of the grand narratives of bracteate scholarship is that mapping the find contexts leads to obvious interpretations, with earlier hoard finds in southern Scandinavia and northern Germany, and later grave finds around the periphery of this area from the island of Gotland, to western Norway, England, Normandy, and across Central Europe. However, the distribution patterns are not immutable, and single finds of these objects outnumber the find locations (not the overall number of specimens) of those recovered from burials and hoards. Dracks in the tidy categorization of find contexts have been begun to appear. In England, where bracteates are typically found in graves, a hoard was recently discovered at Brimham in Norfolk. In addition, settlement excavations now complicate the picture. Some bracteates found in settlements may have been deposited purposefully, as in a posthole at Gutme, 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 offert 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 been collected or found in graves, 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 relegate it to deposition in a hoard since it could no longer be worn in the usual manner around the neck or displayed on the chest of a deceased matriarch in the grave. The technology of jewelry breakage – as well as the corollary of physical and emotional loss has not been included as a part of the story of bracteates as scholars continue to focus on the dichotomy of graves and hoards. The little details incorporating the technology of manufacture and the agency of individuals confound the former simplicity of a grand narrative as we elaborate on our understanding of the past.
TH3-08 Abstract 05

Untold Stories About Ancient Survey: Balbus and his “Expositio et Ratio Omnium Formarum”

Author: Moirintz, Alexandru, Institute of Archaeology, Bucharest, Romania (Presenting author)

Keywords: Balbus and Celsus, groma and dioptra, military survey applications

Presentation Preference - Oral

The paper starts from the premises that, most often, the ancient written sources were given less attention from the perspective of technical information they might provide. The details concerning the dating, geographic location and the correlation with already known historic events was considered essential and, unfortunately, most often insufficient. In addition, specialists capable to read in the original language the ancient sources might not have always been familiarized with the principles of ancient technology. Due to these causes, many of the stories concerning the beginnings of technology remained untold. We might have proof that a certain principle or method were applied, but we do not know HOW. Our presentation proposes a re-reading/re-analysis of the work Expositio et ratio omnium formarum, dating most probably from the first decade of the 2nd century AD, and preserved in fragmentary copies from the 6th and 9th centuries. Taking the shape of a letter written by a certain Balbus and addressed to a certain Celsus, the work contains numerous data of topographic nature, including the mentioning of certain military survey applications. These latter ones present a particular interest. For example, the determination of the widths of a river that had to be crossed or the height of a fortification that had to be conquered “without venturing within bowshot of the enemy” (M.J.T. Lewis) led to the development of ingenious methods. Although the volume is often cited, the accent on the politico-military conjecture prevailed, to the detriment of the technical information it provided, which was neglected. Our presentation will analyze exactly these neglected aspects. We will approach Balbus’ text at three interrelated levels. Firstly, we will try synthesize all the mathematical knowledge that Balbus possessed at the time. Then, strictly based on these, we will try to reconstruct the methods and, implicitly, the instruments that might have allowed the performance of the three military survey applications that Balbus mentioned in the text. The reconstitution of the methods and instruments will be integrated in the historical context of the original text, by evoking a contemporary personality, that of Heron of Alexandria, which brought numerous contributions to the technical field, including that of topographic measurements, with his paper Dioptra. Finally, we will try to discover more about the persons behind the analyzed text (Balbus and Celsus), who, most probably, were people outside the upper classes and the governing group which traditionally provided most of the evidence that comes from literature” (Brian Campbell 1996).

TH3-08 Abstract 06

Tin presence in Geto-Dacian silver coins as revealed by XRF and micro-PiXE – a possible explanation

Author: Dr. Constantinescu, Bogdan, National Institute for Nuclear Physics and Engineering, Magurele-Ifov, 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 fifth to beginning of Ist Centuries B.C. A spectacular aspect is the presence of tin in these coins starting with IInd 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 IInd Century B.C. it was more or less proportionally to copper. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant. The preference for adding tin in Ag/Cu alloys is due probably to the fact that tin attenuates the red color of copper, resulting a silvery nuance of the alloy. A very high correlation is not expected because the ratio Sn/Cu in ancient bronzes is far from being a constant.

TH3-08 Abstract 07

“Yes! We’re all individuals!” “I’m not”: Clusters and the singular in the chemistry of copper-alloys

Author: Dr. Peter, Bray, University of Oxford, Ruislip, United Kingdom (Presenting author)

Keywords: Chemical analysis, copper-alloys, Object life histories

Presentation Preference - Oral

The chemical analysis of prehistoric metal is one of the longest ongoing scientific experiments in the world. Beginning with the pioneers of organised chemistry and archaeology, around 100,000 artefacts from the European Bronze Age have now been investigated. These composition sets are typically interpreted through the lens of ‘grand narratives’ (the provenance hypothesis, a broad sequence of alloys, statistically lumping analyses into groups, or simplistic routes of exchange). These schemes are increasingly at odds with current archaeological concerns such as the fine-scale performance of identity, value, and the agency of individual people and objects.

The grand narratives are beginning to become strained from a chemical perspective as well. Recent research at the University of Oxford has emphasised the subtle variations in chemical composition caused by a unit of metal’s unique life story. Quants of metal can pass through a number of forms, merge with others, be reworked, used, and decorated over time. Many of these processes will leave chemical and isotopic marks that can be interpreted by comparison with contemporary artefacts. In short we are aiming to develop a system of relative chemical interpretation for copper-alloys. This paper will give a series of case studies where a fresh look at old data can reveal individual technological and social stories, within the broad sweep of European Early Bronze Age metal use. These include individual workshop choices, rare chemical signatures that demonstrate the production of small areas from recycled daggers in England, and strange local patterns that were caused by melting and recasting centuries old metal in the south of Ireland.

TH3-08 Abstract 08

A more efficient means for going backward?

Animal husbandry as technology

Author: Dr. Frothshtig, Ty, University of Leicester, Leicester, United Kingdom (Presenting author)

Keywords: Animal husbandry, Technology, Theory

Presentation Preference - Oral

Theoretical examinations of relationships between human and non-human animals in the past are few and far between. There is a clear scholarly focus on concepts such as “exploitation” of species, “disposal” of remains, and a generally unflexible approach to domestication. Past animal husbandry is broadly viewed as a component of agriculture, and conceptualised as temporally progressive, ever approaching an ideal economically-efficient means of production. When a trend in quantitative data fails to follow this model (as an example: a decrease in the size of cattle in Britain after the 5th century AD) it is relatively investigated and cultural factors may be implicated (e.g. Roman withdrawal from Britain). Whist such factors may be partly responsible, only certain lines of archaeoecological 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 not 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 societal and cultural 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.
Digging democracy

Author - Swedeng, Stig, Kulturandskapet, Falköping, Sweden (Presenting author)
Co-author(s) - Olsund, Arinka, Kulturandskapet, Falköping, Sweden
Keywords: Cooking pits, Environmental archaeology, Sample strategies
Presentation Preference - Oral

Archaeology has been used as part of the history about the national state. Still today this story is being rebolt, many times uncritically. At the same time we as archaeologist must admit that we also often relate 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 temporary 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 decide to set the focus on the more peripheral archaeological sites so that they can be a part of our history. This includes, for example, carefully choosing the excavation methodology, and to supplement the collection of finds with scientific analysis in order to actively search for the stories of the people that didn’t have the power to erect stones or mounds.

Before the excavation of the site Tanum 1821 a strategy for sampling the site and structures, especially cooking pits, was formulated. A sampling of the surface was performed in relation to the structures. From excavated structures the section was sampled by a continuous grid and consisted of ten to twenty samples from each structure. These samples were used for geochemical analyses, mainly phosphate, magnetic susceptibility, loss of ignition and lipid acids. These samples were supplemented by samples for macrofauna 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 interpretate the site as an activity area used for the processing of grain.

The site can be interpreted as a peripheral site (now and then) but important for the society. Peripheral sites are also sites beyond control. In such a place can, for example, subversive thoughts and discussions be performed. This is sites were monuments and mounds won’t be erected, but instead represents other parts of the society.

We want to tell other stories. To be able to do that we need to excavate more peripheral sites and use more diverse methods. More people of the past must be given a chance to be heard. Diversity and variety is an important part of a democratic archaeology. If all voices shall be heard we must also acknowledge them, in prehistory as well as today.

Technological variability of pottery in long-term perspective: a case of the Neolithic settlement

Author - Kvetina, Petr, Institute of Archaeology CAS Prague, Prague, Czech Republic (Presenting author)
Co-author(s) - Ther, Richard, Department of Archaeology, University of Harrad Kralove, Hradec Kralove, Czech Republic
Co-author(s) - Neumannova, Klara, Institute of Archaeology CAS Prague, Prague, Czech Republic
Keywords: modal mineralogical analysis, Neolithic, pottery technology
Presentation Preference - Poster

This poster comprises results of a technological analysis of pottery from the large Neolithic settlement site in Bylany, located in the Kuha Hora district in the Czech Republic. This project is based on a complex methodology with the aim of identifying the degree of variability of the technological chains and of interpreting the relationship between the technology and social environment of the settlement. The technological variability is being examined in relation to the chronological diversity and the spatial patterns of the site.

Macroscopic analysis establishes a grid of categories into which the observed phenomena are sorted. By using this approach there will always be some specific groups of pottery. In many cases, however, we do not know the real nature of these groups. Are there different groups of pottery that reflect the distinctive technological traditions of specific chronological phases or are there only continual variability together with one or two broad concepts regarding paste recipes? These are basic dichotomies that we cannot 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. Semi-quantifications are either time-consuming or subjective - depending on the observer’s experience.

A possible solution to this problem lies in a new advance in scanning electron microscopy that enables automatic modal mineralogical analysis that constitutes an accurate estimation of the distribution and the volume percentage of a mineral within a thin section.

Assessing food sharing and social cohesion in the Neolithic of the Levant

Author - Dr. Dietrich, Laura, German Archaeological Institute, Frankfurt am Main, Germany (Presenting author)
Keywords: Levant, Neolithic, Social cohesion
Presentation Preference - Oral

The formation and perpetuation of social cohesion was often related to food sharing. Food is not consumed without being socially and symbolically transformed and charged with multiple layers of meaning. Individual daily meals contrast and interact with collective communal activities, like feasting, which are believed to be essential for maintaining the cohesion of societies.

However, other interpretations tend to interpret large-scale shared meals rather as activities linked to acquisition of social power or status competition. The present paper will explore the connection between food sharing and social cohesion in the...
Late Neolithic settlement of Sitir, Syria. The settlement was extensively excavated by the German Archaeological Institute and represents one of the few explored sites of this period in the Northern Levant. It has a rich stratigraphic sequence which covers nearly a thousand years. So-called individual single room houses consist of ‘special’ multiple room buildings, singular grilling equipment with whole sets for ‘collective’ food processing, and isolated vessels with large storage rooms or buildings. The chronological sequence of the architecture and the contexts and evolution of grilling stoves 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, related ritual activity and settlement patterns in an attempt to draw a picture of social trends during that period. Following this, the significance of ritual activity is evaluated in context of these trends to understand the patterns of social change. At the same time, ritualized burial of artifacts, places and buildings may be a factor that prevents ‘alienation of objects’ and thus accumulation of personal or group capital. Such perceptions may have also been instrumental in the emergence of new alternatives for recording and manipulating social history.

---

**TH3-09 Abstract 04**

**Food preparation, commensality and the formation of social cohesion in Late Neolithic Northern Greece**

*Author*: Lymperaki, Maria, Democritus University of Thrace, Eleftheroupoli Kavala, Greece (Presenting author)

*Co-author(s)*: Urem-Kotsou, D., Democritus University of Thrace, Komotini, Greece

*Presentation Preference*: Oral

This paper focuses on the evidence for collective and domestic solidarity present in Late Neolithic settlements of Macedonia, Greece as revealed by the analysis of cooking pots and cooking facilities from two settlements, Stavrouroupoli (Thessaloniki) and Toumba Kremasti (Kozani). Focused on the typological characteristics of cooking pots, namely their size and shape, in combination with the evidence of cooking facilities it is possible to define more clearly some close connections between groups or ‘households’. The idea of cooking pots in Stavrouroupoli provide evidence for domestic production and consumption of food, while in Toumba Kremasti Kozanida 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. Diahrenko, 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, 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 megalith construction is the island of Sumba in Indonesia. This ethnographic case study shows how collective efforts in building practices are shaped by and vice versa influence the social structure of communities. In this regard, also feasts play an important role. While there are mostly no social restrictions in the access to grave types, the distribution of graves and of their size show some clear patterning. With the ethnographic case study and the archaeological test region in South-Eastern Schleswig-Holstein and North-Western Mecklenburg-Vorpommern suggest, that collective efforts are very important in monument construction. Based on the grave size, the required amounts and resources (e.g. workforce) for building might have been extremely high. Depending on the population of the settlements, cooperation between different settlements or communities must be seen as an important factor. An active use of such monuments for the display of status and economic success of individuals and a group as a whole are reasonable and important aspects. Possible principles of megalith building and the mechanism influencing it are analyzed with regard to the collective character, which is reflected by different aspects of this specific tradition. The high economic expenditure, the ongoing reference to the monuments in connection with feasting activities and collective aspects indicate importance in the preservation of a felt sense of group membership and community structures.

---

**TH3-09 Abstract 07**

**The Boyne Valley, eastern Ireland – the epicentre of a Neolithic ‘super-ordinate’ identity?**

*Author*: McNicholl, Thor, NUIG Galway, Galway, Ireland (Presenting author)

*Keywords*: Boyne Valley, Social cohesion

*Presentation Preference*: Oral

This paper explores the importance of the Boyne Valley Co. Meath, eastern Ireland in the construction and negotiation of group identities in the late-4th and mid-3rd millennium BC. The construction of substantial passage tombs at Dowth, Knowth and Newgrange indicates the potential significance of the Boyne Valley in the conception and mediation of large-group identities during the Middle Neolithic. It will be advanced that the sources of materials utilized in the construction of these monuments and the distribution of contemporary sites across eastern Ireland provide information about the scale and geographical extent of the groups involved in these construction projects in the later 4th millennium BC. The act of building will be considered from the perspective of strengthening group cohesiveness prior to the occurrence of large-scale gatherings at calendrically significant times of year. Evidence for Late Neolithic Grooved Ware associated feasting at Newgrange confirms the continued significance of the Boyne Valley in the constitution of large-scale group identities during the mid-3rd Millennium BC. An overview of evidence supporting the theory that large-scale winter solstice associated feasting took place at the site will be presented. A working hypothesis about the phasing of the activity will be outlined and estimation of the numbers involved in feasting at the site will be advanced. The significance of different scales of feasting event will be considered, and finally, the importance of calendrically scheduled winter solstice gatherings in the reinforcement of group identities will be discussed.
This paper argues that the construction of collective tombs at the beginning of the Bronze Age on Crete constitutes an example of building and burying to effect social cohesion. At the end of the Neolithic the early population of Crete dispersed across the island, yet evidence for durable settlements dateable to this period, with the exception of the major sites of Knossos and Phaistos, remains scant. Rather than the social cohesion of these cultures, a process of aggregation 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 interment – deposition on the ground accompanied by a few objects. Bodies piled up over time, the desiccated remains swept to the side or long bones and skulls selected while the rest were removed. Some 400-500 years after the tombs were constructed the population finally constructed more substantial settlements that nevertheless remained visually proximate to the cemeteries which continued to serve the role of enhancing social cohesion. This role persisted throughout the Early Bronze Age as the emergence of a more robust built environment evoked the addition of anterooms to pre-existing tombs and the construction of more architecturally defined new tombs. Only the emergence of a supposedly palatial culture at the transition into the Middle Bronze Age superseded these tombs as an important mechanism for social cohesion.

Looking for a spa? A social cohesion at Santovka – case study

Santovka (formerly known as Majdromce) is an Early Bronze Age - tell type settlement at southeast Slovakia. It is surrounded by thermal springs which are famous for their salubrious qualities. An ongoing excavation project (currently in its 8th excavation seasons) uncovered a medium-sized fortified site, with exceptionally high number of prestigious artifacts of erotic origin and clear evidence of extensive metalworking activities. Ceramic production and consumption is pretty much homogeneous, with predominant elements of so called matoráce, encrusted wares and otomani culture ceramic traditions. The character of uncovered finds as well as geographical position of the site suggests, that Santovka was a place, where identities were able to merge, transform as well as maintain their distinctive character. These processes were obviously dependent of proper social cohesion. We therefore welcome the topic of this paper, because we believe, that Santovka offers a nice example of a site, where theoretical models relating 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 feasting as a background for social cohesion on subconclusion level, then other shared ritualized activities are not so different. Moreover, production, hunting and grain storage could play a similar role. In this paper we will present the site 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 Százhalombatta-Földvár, Central Hungary: a material cultural perspective

Investigating the sickle blades of Százhalombatta-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 chieftaindom of the Berta valley.

Százhalombatta-Földvár, Central Hungary is a Bronze Age tell-settlement along the Berta river. At the delta of Berta river, Bronze Age in Hungary is the period between 2800-2700 BC and 800 BC. From this period, Százhalombatta represent 2000-1400 BC. This archaeological site has important role in the research of Bronze Age in Hungary – and abroad. The excavation of the Feasting as an important mechanism for social cohesion 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. Százhalombatta-Földvár, due to its size and geographical position, can be considered the head of the Bronze Age chieftaindom in the Berta valley, according to the model proposed by Earle and Kristiansen (2015). 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 Százhalombatta-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 relevant here, because they are a common feature on other Bronze Age site from the valley (Priskin 2014). This information suggests harvest was a centralised communal activity controlled by Százhalombatta-Földvár. Thereby, harvesting (and sickles) could have been organised among social relations, and could help to keep alive these associations.

The studies on Bronze Age Italy have underlined the existence of differences in the apparent social homogeneity of communities. The terramara society has been singled out as an example of social cohesion and homogeneity, thanks to its regular settlement pattern and repetitiveness of house sizes, but also to its “economic” funerary representation and to the widespread infrastructure investment in water channels and fields, as well as in material culture. On the contrary, Southern Italian communities have been described as more hierarchical and socially divided communities, exposed to the Mediterranean wind of inequality coming from the Aegean and the East.

Anyway, the patterns of social disintegration in reaction to the Late Bronze Age crisis show that the collapse of the terramara system was more radical and extreme than the limited rearrangement suffered by the Southern Italian societies. It can be suggested that solidarity, identity and cohesion are indeed patterns linked to dynamic structures of power, strongly relying on a non-contradictory expression of power, which likely has its strength in a fœtistic structure of power. Anyway, it is also interesting to deconstruct this view of (ancient) societies, in order to understand how far our research traditions have fossilized our understanding of the past.

Take an image, it'll last longer: Mycenaean multimediality, prestige, and competitive conformity

The inherently, literally built-in segregative nature of Mycenaean palaces as the seats of political authority and the role of palatially sponsored feasts, held amongst others at the palace itself, as a means of creating a shared identity and thus fostering social cohesion have been key topics of Mycenaean archaeology for the past two decades. The proposed paper seeks to further highlight the link between creating a common identity and promoting cohesion in the sense of conformity. Beyond ‘making Mycenaeans’, as it has been put, how could the palace then make those Mycenaeans fall in line, i.e. bind them to itself and its agenda? Establishing a prestige discourse in which the palace was both the yardstick to gauge one’s standing and the provider of the means to enhance it is suggested as a possible key strategy, ideally leading, from the palace’s perspective, to what might be termed a ‘competitive conformity’ of the ruled. Following a discussion of the nature of prestige, potential visual elements of every such discourse organized by and/or associated with the palace are sought as possible correlates, i.e. physical archaeological evidence, of such a palace-fostered discourse. Specific attention is paid to such potential metaphors which transpose iconographic themes closely associated with the socially exclusive architectural setting of the palace itself, e.g. themes in the canoi of palatial wall-paintings, into different media and media of different degrees of exclusivity. Possible case studies include drinking vessels, chariot and hunting iconography as well as depictions of antithetical felines and griffins.

Presentation Preference - Oral

Presentation Preference - Oral

Presentation Preference - Oral
The theoretical and methodological perspectives in archaeology

Theo-30 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, Karolinska 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 Lupas in Northwest Romania. As a result of an international excavation and research project (Chair for Pre- and Protohistory, LMU Munich, Germany; Maramures County Museum in Baia Mare, RO; Archaeological Institute, Karolinska 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 mantle, 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 societies we also see oppositional aspects represented in Lupas. As a result of excavations in the past and recent surveys within the project several contemporary or supposedly contemporary barrers with traces of comparable structures were detected. Thus ritual feasting in Lupas 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.

---

Theo-30 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 armament. A specialized group referred to as elite warriors in research tradition seemed to have been drawn a certain status from their peculiar role within a social system developing complex group identities and heavily drawing on cohesive communities. In the course of this paper the warrior's sword will be discussed as tangible (yet not exclusive) manifestation of such a group identity – apparently uniting (and dividing?) different levels of (functional) role and (social) status of Bronze Age warriorhood with a closer look at the weapon's changing expression in funerary ritual and deposition as alternative models of household.

In our session we would like to welcome contributions discussing the relationship between house and household, both from theoretical and from methodological and empirical points of view. The main focus is how to develop the analyses and understanding of households as function and structure in past times, and the relationship between houses and households, as for example through deeper cooperation between history and archaeology.

---

Theo-30 Abstract 15

Social cohesiveness as concept of habitus through the lens of archaeological record

Author - Pape, Eleonore, German Archaeological Institute, Frankfurt am Main, Germany
Co-author(s) - Uhl, Regina, Eurasia Department of the German Archaeological Institute, Berlin, Germany (Presenting author)
Keywords: 3rd Millennium, habitus, social cohesion
Presentation Preference - Poster

Social cohesion can be expressed, created and maintained through a variety of ritualized and/or performative events which can respectively involve different group constellations that constitute society.

Following Bourdieu's concept of fields and habitus, we choose to focus on the entanglement and juxtaposition of different group identities at different levels, expressed through distinctive sets of material culture and features. Our experimental approach shall be applied to various case studies of the 3rd millennium BC in Europe from a cross-border macro-level to a multitude of local micro-scale units.

---

Theo-30 Abstract 01

Linear Pottery houses and their social context

Author - Dr. Zych, Renata, Błędowa Tyczyńska, 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.

---

Theo-30 Abstract 02

Ancestral Homes: Household Biographies in Late Iron Age Scotland

Author - Dr. Baxter, Lindsay, University of Bradford, Halifax, United Kingdom (Presenting author)
Keywords: Biographies, Iron Age Scotland, Roundhouses
Presentation Preference - Oral

This paper presents the results of biographical and materiality approaches to the study of a group of well-preserved Late Iron Age houses at Broomhall in south-east Scotland. The roundhouses display a variety of different forms and fabrics, and include 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 or two, and appear to have been concerned with the renegotiation of household identity with reference to previous generations and ancestors. Furthermore, the referencing of certain special deposits by others laid down several centuries later suggests the presence of...
strong oral histories and practices designed to prolong the memory of successive generations of inhabitants of these buildings. As such, the houses themselves (their fabric and their spatial organisation) appear to have been central to the construction, maintenance and renegotiation of household identity in later prehistoric Europe, as glimpsed through various ethnographic examples in the more recent past.

TH3-10 Abstract 03
Household Archaeology in a small scale house in an early byzantine settlement
Author - M.A. Steinborn, Miriam, Römisch Germanisches Zentral-Museum Mainz, Mainz, Germany (Presenting author)
Keywords: Byzantium, Excavation, Household
Presentation Preference - Oral

The early byzantine settlement of Carćin Grad in southern Serbia can be identified with the imperial city Ludiniana Prima known from De Aedifici of Procopius which existed for merely 90 years. Without any marks of earlier or later occupation, the excavations provide unique insights in the life of the West Slavs in the 6th century. Excavations in Carćin Grad take place since 1990. The early campaigns concentrated on representative buildings like churches, while the emphasis nowadays is on the living quarters. Considering the concept and methodology of Household Archaeology, one single room house was excavated in 2014 and 2015 in high resolution with integration of archaeobiology and soil science. The finds indicate a habitational function. The interpretation of the building bases on the results of interdisciplinary research. The simple configuration of the house and the multiplicity of potential types of use in a single room structure challenge the examination. It raises the question whether it was a complete household or not. This is the crucial point where field work and the theories of Household Archaeology come together. Working with an elementary constructed house and a few objects connected with specific activities restrict the possibilities which houses with many rooms and outdoor-areas may provide. Therefore the preliminary results of the excavation will be discussed from the perspective of Household Archaeology.

It is necessary to examine the activities in- and outside the building to understand the function the household fulfilled in the settlement. Taking their perspective on the settlement raises the question of their mentality and their everyday life. The household can be seen as the place where social roles are negotiated and thus as a social landscape which reflects the mentality of the dwellers. The analysis of installations and furnishing, and so the household is a condensed activity 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 Carćin Grad took place in a time of far reaching cultural change. Written sources provide little insights in the situation of common life. In combination with the archaeological record they allow to delineate the possibilities of household organisation for a specific historical situation.

The talk will examine if it is generally possible to work with the household concept if there are unspecific structures or if it is rather necessary to apply it to gain more information. With regard to cultural formation processes this also raises the issue of the possibility to detect paupers archaeologically. For this purpose it will present the archaeologica remains of a specific small house and compare it with the normal course of life in early Byzantium known from historic tradition.

TH3-10 Abstract 04
Pottery as personal belonging in a Clarisses convent in Vilnius
Author - PhD student Urbanaitė-Ubi, Miglė, Klajpeda University, Klajpeda, Lithuania (Presenting author)
Keywords: historic archaeology, household, pottery
Presentation Preference - Oral

Pottery is the most common artefact in excavations of historic sites. Due to vast number of fragments pottery is often identified as mass artefact. Nevertheless, some early modern period pottery in Europe can be associated with personal needs and usage. Pottery with scratched marks such as initials, religious abbreviations, letters or numbers or unidentified scratches are found from many urban and rural sites in the Netherlands and Germany. These marks are assessed as a personal sign of the owner. Most of these marked pottery fragments are uncovered from monasteries and convents. This fact leads to an interpretation that nuns and monks possessed their own ceramic dishes while in most cases private property was forbidden.

In a convent of Clarisses in Vilnius Ožiųon (Maironio street 11) 10 fragments of marked ceramic dishes from the end of 17th to beginning of 18th century were uncovered during the excavations in 1994 and 2007. These dishes had only marks of letters which were identified as initials of the nuns. Historic data of this convent allowed to identify few names and some initials were found within the 17th and 18th centuries in Kalmar, Jönköping and Linköping with detailed accounts of the households, the owners and the residents. The relations between the households will be analysed in comparison with the building structures within a theoretical framework of actors and agency. The main focus is to develop the analyses and understanding of households as function and structure in past times, and the relationship between houses and households, as for example through deeper cooperation between historians and archaeologists.
In this paper, I propose a critical examination of the archaeological archive. Using my personal experience as an archaeologist working in the archives at the Museum of Cultural History in Oslo as a point of departure and a case study, I intend to explore the concept of the archaeological archive from two different angles:

1. In archaeological research, archaeological contexts are always being interpreted with a conscious and reflective view on past paradigm shifts 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 remains from prehistory, can be read and interpreted, both as a historical source for the context and provenience of archaeological artefacts, as well as remnants of the theoretical and societal circumstances and conditions that have, in different ways, influenced the archaeological processes.

2. What has happened and has not been documented and kept in the archaeological archives is a product of changing paradigms and selective memory, whether conscious or unconscious. Even so, because of the destruction and displacement caused by an archaeological excavation, the original documentation is the closest we will ever get to the original situation, and archaeological archives, in general, will offer a description of how and why it came into being. From the point of view of research, an archaeological archive will also be the least biased source of information, as every re-interpretation from previous research adds a new layer of preconceptions.

In this session we are exploring theoretical and methodological approaches to archive-based studies as well as the conceptualization and use(s) of archives. The importance of archives for archaeological research and field practice is undisputed in present-day archaeology. Nevertheless archival sources are often neglected and/or underestimated. Archives are essential for historians of archaeology, but at the same time they are also invaluable for the everyday practice of archaeologists. The process of archiving is one of the most important features of archaeology and it has had a great influence on the professionalization of the discipline. However, various archival aspects are often overlooked. For example, it has been common practice to separate documents and artifact collections when archiving when they should in fact be included in the archives together as equally important archival data. This greatly impacts anyone who studies the past of a particular site, biography of an archaeologist or the history of archaeology in general. In addition, the archive can act as a resource connecting the past, present and future of our discipline. Archives can also provide a starting point for research projects.

The starting point for this session is the broad definition of an archive: archaeological records including documents, finds and museum collections. We welcome papers from scholars working with historic as well as contemporary archival sources and we also encourage broad-based humanistic views and interdisciplinary perspectives on archives. By exploring the archive as a concept and by combining various types of archival materials, we can redefine the archive as a resource and gain a new perspective on archive-based research studies.
In this paper I want to develop a very simple linear line of thought about the significance of the archives and archaeological documentation. In one of his papers James Deyo proposed that archaeological documentation, field reports and similar works should be treated as archaeography seeing that they stand in a similar relation to ethnography as etymology does to etymology. One could then readily point to this distinction and claim that archaeography, description of the artifacts, and not the artifact itself is the source of archaeological research. During fieldworks artifacts are collected, measured, described and interpreted, and only the result of this process and not the excavated object could be called an archaeological source. Site and artifact documentation published in various reports and papers is then applied to other papers and the process is repeated indefinitely. Adopting this notion should switch scientific attention to the archives as they hold not only the aforementioned sources, but also artifacts-objects, and thus they provide the only context for reconstructing excavation process and reference point for the discourse. The nature of archaeological site allows full contact with the artifacts in its context, but as a price of being confined to the excavated area, so that the view upon explored culture or community is restricted only to the actual size of the site. Any additional information is obtained via 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.
Albeit Cyrenaeaca, being one of the prominent regions of the Greco-Roman civilization, attracted the attention of scholars from the medieval period onwards, its political isolation after the Arab and later, Ottoman conquest, gave reason to the visible delay in the 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 Cyrenaeaca enables us to capture and follow significant stages in the evolution of archaeological interests, pursued by scholars active both on the sites and behind their desks. However, this story could not be fully understood if deprived of the broader, political and social perspectives. From the beginning of the 19th century, when archaeological activities ceased to be purely private ventures, public authorities used archaeological travels to achieve their own purposes, including non-scientific ones. The newness of archaeological evidence was seized by the conservatives in order to justify an expansion in North Africa and the Middle East, on the other hand – the results of archaeological exploration: artefacts enriching museum collections, testified the prestige of the state. This political context can be reconstructed thanks to the archive queries of unpublished documents kept in various state institutions in France and England. 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 Cyrenaeaca in the 18th and 19th centuries. Among the travellers, a special role was reserved for diplomats, for whom official activities created an opportunity to undertake their own research (e.g. Joseph Vattier de Bourville, George Dennis), and agents of the state institutions (e.g. Beechey brothers, Porcher and Smith). The support of the Admiralty or museums helped those travellers to fulfil both, scientific, as well as any other significant goals.

Archives Vs Archaeology: the case study of the building beneath Via di San Nicola de’ Cesarini, Rome

Author: Guglielmo, Andrea, Università di Venezia “Ca’ Foscari”, Rome, Italy (Presenting author)

Keywords: Archaeology, Classical Archaeology, Ancient Topography, Topography of Ancient Rome, Ancient Rome, History of Archaeology, Archives Data, Historical Archives, Roman Architecture, Campus Martius

Presentation Preference - Oral

In this paper, I will try to shed new light on the discovery of a building excavated during the 1920s and 1930s beneath Via di San Nicola de’ Cesarini, Rome, by means of both archival data and archaeological evidence. Surveying the historical archives of Rome (i.e., unpublished notes, drawings, tracings of brick stamps, and period photographs) allows for both a reconstruction of the appearance of the building at the moment of its discovery, as well as the dating of its phases. The old cadastrum of the city, the Catasto Pio Gregoriano, and the Cabreo della fognature della città di Roma, a limitless collection of plans and drawings of the ancient and modern drainage system of the city, are also invaluable tools for the completion of this task. Thanks to this work, it will be possible to reconstruct the building in all its phases and to attempt an identification of it, drawing a new and up-to-date archaeological map in order to facilitate future work on the surrounding area.

Digging in the repository: finding the First World War in the University of Glasgow archives

Author: Dr. Novotny, Jennifer, University of Glasgow, Glasgow, United Kingdom (Presenting author)

Keywords: archives, First World War, superspecimen

Presentation Preference - Oral

Archaeologists and authors 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 authors 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 connections of these two distinct but related practices while undertaking research into the First World War. Firstly, it highlights our roles as arbiters of the past. As Pierre Nora (1989: 10) observed in Lieux de Mémoires, “To interrogate a tradition, venerable though it may be, is no longer to pass it on intact.” As archaeologists and authors, we largely accept the interventionist nature of our work – we know that we must necessarily change, reorder, or otherwise destroy the past in the process of investigating it and preserving it for the future; furthermore we try to acknowledge our biases, our subjectivity, and our modern viewpoints. How then do we approach a topic as big as the First World War and the challenges of 20th-century archaeology and archives? Is it sufficient that we, as archaeologists and authors, are well placed to talk about a war of overbountiful materiality, the epiphany of Gonzalez-Ruibal’s (2008: After Augé) superspecimen era. How do we deal with the material legacy of the superspecimen, as well as what Nora felt was a modern society gone ‘archive-mad’ where we immediately historicise the present? Archaeologically, the First World War leaves us with millions of spent shells, millions of broken bodies, kilometres of trenches. Likewise it generated an astonishing amount of clerical paperwork: forms in duplicate and triplicate, millions of records, all filed away, some of which survive today. Today we continue to archive the superspecimen – the seemingly limitless digital files created every day that take up real-world physical space, not in kilometres of shelving, but in computer servers. As Glasgow University’s Great War project has seen, however, the bureaucratic records of everyday life – often times astounding in banality - are of real value to later scholars. By thinking archaeologically about these archives, this paper offers a look at how interdisciplinary collaboration can enrich and enhance research, while making us think critically about our work.

Archives and shipwrackes in the Baltic

Author: PhD Student Alvik, Riikka, The National Board of Antiquities, Helsinki, Finland (Presenting author)

Keywords: archives, maritime accidents, shipwrecks

Presentation Preference - Oral

The brackish waters of the Baltic hide thousands of shipwreck from different eras. Most known wrecks of sailing vessels are from historical times and later than medieval. How can we compare and combine the sources from archives and archaeological data from shipwrecks to make their story complete and also scientifically valid? The brackish waters of the Baltic need the collection of data from different sources. Shipwrecks are important archaeological sites in today’s Romania, as well as for the international academic network that she developed through her vast scientific correspondence with well-known scholars of the time, such as Archibald Henry Sayce, Francis Haverfield, Johannes Ranke, and Albert Voss. After Zsófia Torma’s death, her activity was underestimated and ignored by most Romanian and Hungarian archaeologists for almost a century. However, the systematic excavations conducted at the site of Turda-Lunca between 1992 and 1998, as well as the preventive ones in 2011, have revealed the necessity of re-evaluating her archaeological activity and writing her scientific biography.

This paper is a case study about the experience of working with archival sources in the process of writing Zsófia Torma’s scientific biography, within a complex research that has been undertaken during the past three years, in seven Central and Eastern European institutions. These institutions are as follows: The National Széchényi Library (Budapest, Hungary), The Hungarian Academy of Sciences (Budapest, Hungary), The Hungarian National Museum (Budapest, Hungary), The National Archives of Hunedoara County (Deva, Romania), The National History Museum of Transylvania (Cluj-Napoca, Romania), The Brukenthal National Museum (Sibiu Öregváros, Romania), and The Szekler National Museum (Cluj-Napoca, Romania). Among these institutions are the richest in archival materials concerning Zsófia Torma’s personal and scientific life. The first part of this paper aims to trace the differences and similarities between the archival materials from Romania and Hungary, by taking into consideration various aspects ranging from the content and relevance of the documents to their accessibility, way of preservation, and the conservation of archives. In addition to this, the second part of the paper focuses on the methodology employed in this research, as well as its main results and conclusions. Finally, the paper emphasizes the importance of archival materials in establishing Zsófia Torma’s place in the history of Hungarian, Romanian and European archaeology.
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 one 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. Kuc, 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 rescue excavation which was undertaken in 1956 and 1957 in advance of the building of a Rocket Range in the Uists; the results of which were never published. In the 60 years since, the finds material and paper archive has found its way into the collections of a number of different institutions, including the National Museums Scotland, Kelvingrove Museum, Historic Environment Scotland, and the National Archives. Collation and analysis of this fragmented record has brought to light previously unrealised information about the excavated features, showing the presence of at least two wheelhouses and numerous related features. Details for the excavated deposits were lacking, although the location of the artefacts and the date they were found 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 potteries residue. A Bayesian approach that considered stratigraphic contexts and feature formation processes was used to estimate the site chronology and sequence. Results demonstrate that activity occurred primarily in the 2nd–1st centuries BC. The chronological analyses have also helped identify ancient curation and provide evidence addressing if Iron Age activity may have been more extensive than the two wheelhouses. Further, this demonstrates the potential that artefacts in older archives have for producing new chronologies and for refining archaeological interpretations. Similar approaches could be taken to help maximise the potential of old archives that may be incomplete or not recorded according to modern standards.
Theoretical and methodological perspectives in archaeology

The Society of Antiquaries of Scotland has been publishing since 1782 and has produced the journal Proceedings of the Society of Antiquaries of Scotland (PAS) annually since 1851. These volumes provide a record of research excavations, rescue excavations, archaeological surveys, studies of objects, views 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 PAS archive and since 2003, PDFs of more than a year old have been available to view freely online via the Archaeology Data Service (http://archaeologydataservice.ac.uk/archives/view/pass/index.cfm). Since 2011, users have downloaded PAS articles more than 386,000 times. We also host the full text of our out-of-print monographs and Scottish Archaeological Internet Reports (SAIR) with the ADS. The sheer amount of archaeological knowledge that our publications contain makes it an indispensable resource for anyone studying the history of antiquarianism and archaeology in Scotland, as well as a treasure trove of detailed information on archaeological sites and artefacts. As these publications cover hundreds of years of research, thousands of different objects and sites, and hundreds of authors, their simple 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 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 follows with an interest in Scottish archaeology and history, will remain for the decades and centuries to come. How can we ensure that our rich history and archives will remain visible and relevant for as long as they are needed?

TH3-11 Abstract 18
Ancient inscriptions and digital archives: offering an undeciphered script to the public

Author: Dr. Tomas, Helena, University of Zagreb, Zagreb, Croatia (Presenting author)

Keywords: 3D scanning, ancient inscriptions, digital archives

Presentation Preference - Oral

Creating databases with digital archives of ancient inscriptions has become customary over the past decade. Digital databases of cuneiform tablets are particularly popular, and thanks to advanced digital technologies, especially 3D scanning, thousands of cuneiform inscriptions can now be freely browsed through by both specialists and non-specialists, meaning that they have become easily accessible to anyone interested in studying them. Yet, there are many inscriptions in other ancient scripts that still await a similar treatment. One such script belongs to the realm of the earliest European literary: Linear A, used during the Minoan civilisation and still undeciphered. A digital archive of clay tablets inscribed with this script is still non-existent, but hopefully such a state of affairs is soon to be changed. By taking Linear A tablets as a case-study, the paper presents various aspects of how our understanding of ancient inscriptions can be improved by using their 3D images. Previously used plaster casts, photographs, drawings and text copies of tablets have not proved accurate enough, especially when it comes to analysing various physical features of tablets. For decades clay tablets were treated as secondary to inscriptions they carried, and it is fairly new to approach those documents as archaeological objects themselves and pay full attention to their physical properties. Studying those physical properties is necessary to provide reliable and complete information to archaeologists, without access to actual tablets is limited to a small circle of specialists (and even they sometimes face obstacles, such as the fact that relevant inscriptions may be scattered around the world in museums, either displayed behind glass in museum galleries, or locked away in museum storerooms). Digital archives of 3D images have been changing this situation rapidly, and they in addition allow interdisciplinary research, for example a study of the ancient script. The paper will provide an overview of various aspects of improvements in our understanding of Linear A tablets through 3D scanning. We will present our results by creating their digital databases, and will also reflect upon how such a database could draw a much greater interest of public to this undeciphered script. For the simple reason of inaccessibility to its tablets, crowdsourcing is automatically excluded from the field of Linear A studies – an important thing to keep when reminding ourselves that a successor to Linear A – the first known Greek script called Linear B – was deciphered by a non-specialist.

TH3-11 Abstract 19
An essential documentation from the A. D. Archive of Rome to throw light on archaeological issues

Author: Vecchiome, Alessandro, Sapienza - University of Rome, Rome, Italy (Presenting author)

Keywords: archive, Hadrian, Rome

Presentation Preference - Poster

In the era of MDAS (Massive Data Acquisition Systems) applied to archaeological sites the battle between the so-called “old” and “new” research methodologies and data recording techniques is burning up. But at the moment there is still something invisible even to the best-equipped tools: the traditional data archives. Thinking as a human being is unavoidable to unlock this large number of items we need to use.

The Historical and contemporary Archives of the Soprintendenza agli Scavi e Monumenti della Provincia di Roma was created in 1770, 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 WWIII. 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://archeoinfa.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 amount of online data such as the “excavation report”, e-books and, soon to be published, the iconographic collection.

The author of this paper was involved in a nearly two-year long work, supporting the activity of archiving and digitizing data into different DB systems. The aforementioned case studies are helpful examples of the role of data archives in present-day archaeological research processes.

TH3-11 Abstract 20
Archival sources and archaeological research: documents for rediscovering antiquity

Author: Dr. Rustico, Letizia, SS-Col, Rome, Italy (Presenting author)

Keywords: Archaeology, Archive, Reconstruction

Presentation Preference - Poster

The documentary material held in historical archives is a vital starting point and accomplishment for scholars wishing to carry out research on archaeological topics and especially on ancient topography. For the city of Rome the valuable evidence in archives reflects work to safeguard antiquities, started in the 16th century by the Papal State and continued by the various institutions that succeeded one another in this institutional task. The available sources – writings, drawings and photographic images distributed among different archives – document the archaeological remains discovered during the intense activities of urban transformation. Sometimes these are the only clues for reconstructing ancient and no longer extant contexts, allowing to recover important information. Today information technology allows us to incorporate this type of information into Geographical Information Systems with a good degree of approximation, to map it and support the use of data through structured databases and specially developed graphic models. To illustrate this we will show some examples from the Aventine hill archaeological sites, rediscovered thanks to archival research: a stretch of the Servian Wall in Via lioico; the frescoed domus in Largo Argio VII, e.c. Casa Ballezz; tufa quarries; remains underneath the FAO building.
HOW TO MAKE A FIELD SCHOOL WORK: MANAGING ISSUES, DANGERS, OPPORTUNITIES

TH3-12
Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 114
Author - Bedin, Edoardo, UCL, London, United Kingdom
Co-author(s) - Di Felice, Patrizio, Roma, Italy
Co-author(s) - Miaczewska, Anna, Uniwersytet Marii Curie-Skłodowskiej w Lublinie, Lublin, Poland
Co-author(s) - Kubeš, Agata, Uniwersytet Wrocławski, Wrocław, Poland
Co-author(s) - Vecchiet, Costanza, Durham University, Durham, United Kingdom
Co-author(s) - Sposilo, Francesca, Università di Padova, Padova, Italy
Co-author(s) - Cesare, Giulia, Università di Köln - Archäologisches Institut, Cologne, Germany
Keywords: Archaeology, Management
Presentation Preference - Regular session

Archaeology Field School is supposed to be a training environment for students who aspire ultimately to become archaeologists, but is it the right place? Archaeological projects have faced for many years now an increase in field school offers, the majority of them asking students to pay a fee or tuition for joining the field school where they would be trained by professional archaeologists. Very often these projects ask for very high fees which students cannot always cover, consequently forcing them to search for some other training opportunities.

What are the reasons for such high fees? Do these high fee projects train better archaeologists than other archaeological fieldworks? What is the best technique to build up a successful field school project? What expectations do student have when they apply for a field school? Should field schools be led by universities, non-university institutions, or partnership between the two? Would a management plan and a business plan help to provide a better working place for all the parties involved?

The primary purpose of this session is to analyse archaeologists’ working methods on developing a successful field school, with the aim of answering the questions above. The discussion should focus on issues encountered during the development of projects and on means for providing the best training for archaeology students, where the focus should be placed on improving their skills in a limited time-span, but also reducing the costs of running the field school. The ultimate purpose of this session is to provide the base for further improvements in the creation of effective and well-organized projects, which can turn archaeology students into actual professionals on archaeological sites.

TH3-12 Abstract 01
From Office to Field: Developing University of North Georgia's Sicilian Archaeological Field School
Author - Prof. Balco, William, University of North Georgia, Dahlonega, Georgia, United States of America (Presenting author)
Keywords: Engaged archaeology, Field school, Instructional research
Presentation Preference - Oral

Archaeological field schools are the primary means to expose students to their first excavation and to train future generations of professional archaeologists. During these programs, students are engaged in experiential learning, critical thinking, and cultural experiences. Likewise, the development of an archaeological field school often engages university administrators and faculty in a similar manner, introducing them to the nuances of scientific archaeological fieldwork in diverse settings. This paper discusses the challenges faculty and administrators must face together when developing an international archaeological field school. Such programs break the mold of a traditional study abroad program by involving complex logistics, risk management strategies, site locations, course schedules, and learning outcomes. University of North Georgia’s Sicilian Archaeological Field School serves as a case study for the development and implementation of a new international program requiring close collaboration between university, civic, and regional partners. This program blends instruction with research to provide students with a holistic perspective of archaeology. The delicate balance between project goals, pedagogical strategies, logistical challenges, and program costs are explored, proposing a strategy to keep costs low and learning outcomes high. When offered as a study abroad program, such instructional research projects afford students with the skills necessary to pursue careers in archaeology as well as valuable cultural experiences transferable to a broad variety of careers.

TH3-12 Abstract 02
The many meanings of Archeological Education: field schools in archæological heritage management
Author - Dr. Pérez-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) - Langitz, Meredith A., Boston University, Boston, United States of America
Keywords: field school, heritage, training
Presentation Preference - Oral

Archaeological Education is going through either a crisis or an expansion; through revision or agony. It very much depends on the observer and the field from which he or she comes. In Europe, archaeology used to be taught solely in History departments. In the United States, it is part of Anthropology or Classics Department. Archaeological Science is becoming increasingly relevant, and techniques in which no digging is involved are preferred by researchers. What about Archeological Heritage Management (AHM)? What is its specific weight and role in this new higher education landscape? AHM is frequently treated as an apprenticeship to traditional research rather than an essential element to be planned for from the beginning. It is also taught in the final semesters of a degree, as it traditionally reflects something done at the end. Interestingly enough, a good number of graduates in archaeology find jobs related to AHM: museums, historical societies, international organizations, cultural tourism, etc. This disconnection between what we are teaching our students and what awaits them in the outside world needs some attention. Over the past several years, the authors have been incorporating AHM as an integral part of our curriculum, both in the classroom and the field, and, 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 archeological and heritage management field school on the island of Menorca (Spain) from 2009 to 2016, which started as a traditional field school but evolved to an “only-heritage” experience. We teach archaeology from a holistic perspective that incorporates the theory and practice of archaeological stewardship: preservation, interpretation, management, and public outreach of archaeological resources. We want to share the reasons for this shift, and the challenges we have faced to make it work.

TH3-12 Abstract 03
How to improve the offered preparation and avoid the risk of “fake” field school
Author - Vecchiet, Costanza, Durham University, Trieste, Italy (Presenting author)
Keywords: Archaeology, Field school, skills
Presentation Preference - Oral

Field school seems to be a compulsory “step” every future archaeologist is required to attend to form and train his/her skills, useful for any future career. However, over the past decades - especially the last two - a steadily increasing lack in number of sponsors and fundings opened the access to excavation areas to volunteers and non technician, in love with this job, holding partials or no skills at all, but able to help and enjoy the digging experience in change, sometimes, only of accomodation and meals.

Surely, to some extend, the contribution volunteers gave to archaeology has been wide and important in order to carry on excavations. But it is it safe, both for security and carelessness of the work, replace in the hand of not paid and not formed specialist the work that should be led by professional archaeologists?

Universities are the first bodies allowed to test our abilities, training our skills and checking our work during the whole excavation session. Otherwise, especially in certain countries were the practices of field school on “real” excavations are sponsored by participants, volunteers and crowdfundings, there is a high risk of “cheating” field schools, aiming mainly in collecting money, but no able and not in want to give a proper formative experience.

This paper is aiming to analyze both the academical and the private sector, trying to outline fixed point and guiding lines the two of them should use when offering an amazing, but truly worthy, field school experience.

TH3-12 Abstract 04
Through the thin mesh - Bucket flotation in EcoPlis project: 2015 fieldwork
Author - Monteiro, Patrícia, IAC/EBH/University of Algarve, Faro, Portugal (Presenting author)
Co-author(s) - Mateus, Roxana, Núcleo de Alunos de Arqueologia e Paleoecologia da Universidade do Algarve, Faro, Portugal
Co-author(s) - Pereira, Telmo, IAC/EBH/University of Algarve, Faro, Portugal
Co-author(s) - Carvalho, Vínia, Oeiras Municipal de Leiria, Leiria, Portugal
Keywords: archeological, archeology, paleoecology, environmental science, field school, educational, training, heritage
Presentation Preference - Oral

In the EcoPlis project: 2015 fieldwork was used the so called “thin mesh” or “bucket flotation” in some of the sessions. This method is known as a useful technique to extract the smallest artifacts and select the seeds for further analysis. However, one of the main difficulties in the field is the correct use of this methodology. The thin mesh can be used to separate small artifacts from the soil or to sample the sediments for future research. The goal of this paper is to present the methodology used in the EcoPlis project and to show the results obtained in the field. In a previous session, the thin mesh was used for the first time in the project, to separate small artifacts from the soil. The results were very promising, as it was possible to recover a lot of small artifacts and seeds. However, the use of the thin mesh requires some experience and knowledge, as it is not an easy task to use properly. The use of the thin mesh requires a lot of attention and care, as it is easy to lose some small artifacts or seeds. The results obtained in the EcoPlis project show that the thin mesh is a useful and effective tool for the recovery of artifacts and seeds, and it is recommended for future fieldwork.
The flotation method to process archaeological sediments is proved to be the most efficient way to recover plant macroremains. Although the importance of flotation of sediments for a successful sampling, it is still not always applied systematically, bias the further representation and interpretation of archaeobotanical remains. Many are the reasons that have been holding back its application and most are linked with logistical issues. The development of the Bucket Flotation by Dorian Fuller has allowed to apply this method in a simple and efficient way, even under conditions where limited access to water.

Our preliminary results motivated us to share our experience, on what it proved to be an important field-lab work technique for students to acquire and as highly efficient method to process sediments.

---

### TH3-12 Abstract 05

**Running Your Dissertation as a Field School:** Pros and cons for both instructor and students

**Author:** Polotar, Darren, SUNY Buffalo, Tonawanda, United States of America (Presenting author)

**Keywords:** Archaeologists, Field School, Teaching

**Presentation Preference:** Oral

---

### TH3-12 Abstract 06

**Training the future generations of archaeologists at Alberese**

**Author:** Dr. Sebastià, Alessandro. University of Sheffield, Sheffield, United Kingdom (Presenting author)

**Keywords:** Archaeology, Field schools, Training

**Presentation Preference:** Oral

---

### 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 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 from 1996 to 2014; secondly, the opportunities and positive results achieved in terms of employability, career development, site management, engagement with local community and visitors.

The aim of this paper is to propose means of creating the base for improving this fairly new way of doing Archaeology, which does not only answer the academic research questions but has to provide students their first chance of gaining field-working experience and engage the local communities, bearing in mind the financial issues.

---

### TH3-12 Abstract 08

**To what extent can management skills help archaeological sites in their self-sustainability?**

**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 sparse financial helping and bad evaluation of their potential, both economical and educational. Over the last two decades, new types of possible financing (like crowdfunding and small donation from private bodies) have offset the vacuum of state financial assistance – at least in Italy – allowing some important project to be realized even after all.

Nevertheless, it is undeniable this cannot be considered a long term solution, and new perspectives for the management of archaeological sites and cultural areas need to be found out and seriously taken into account.
One of this could be and, in the daily scenario, must honestly be an attempt to self-sustaining by the excavations and of the cultural projects themselves. It is in this renewal air and management reorganization that new Master and specialized courses were born. They are born because of the sector specialists having realized how important it is for the survival of archeology and free management find a way to make culture more accessible, not a slave to political austerity. Several, certainly, are an illusion: the archipelago of 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 excvation maintenance. Everything it is up to the archaelogists 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 metling archeological and managing knowledge all in the hands of ones who really run the excavation and its activities?

These, obviously, are just some suggestion. Thus, analyzing and comparing experiences tested already, the present paper will try to give an overview about the current status of archeology and its future opportunities and possibilities if well managed.

---

**TH3-12 Abstract 09**

Site management and business plans, conservation and public engagement issues and opportunities

**Author:** Edvard, 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, it conservation and valorisation.

The second purpose is to explore limitations in achieving financial self-efficiency while managing an archaeological site and demonstrating the need to change the approach to Italian Heritage in order to “rescue” it from the risk of abandonment due to lack of funds. If a site can reduce the reliance of public funds it will protect the site from possible conservation and valorisation issues due to funds cuts as a consequence of economical crisis like it has occurred since 2008.

The last goal of this paper is to explore what actions can be taken to reach a much wider public, including those that would not naturally come to visit the site, and understand the possible threats of the rise of visitor numbers, while investigating the possible benefits in terms of job creation within the site and in the buffer zone.

The final question which will be tried to answer is: are all sites potentially sustainable or is it necessary to consider the closure of some to preserve them until more funds become available?

---

**TH3-12 Abstract 10**

Drama - Merdzhumekia: German archaeological field-school in Bulgaria

**Author:** Vatchev, 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 Foi, prof. Jan Lichardus, prof. Francesca Bartemes and Iliya Iliev.

The aim of this poster is to present the methodology used by German scholars during the archaeological excavations in the village of Drama. The system permitted students to participate in all aspects of the project: archaeological excavations, graphic documentation and processing of ceramic materials and finds. During the international project, more than 300 students and University assistants participated from Bulgaria, Germany, Czech Republic, Slovakia, Hungary and Luxembourg. Some of them are now leading archaeologists and University professors in Bulgaria, Germany and England.
CREATIVE ARCHAEOLOGIES II
CONTINUING THEORY 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 - Synne Thrustvedt, Ania, University of Gothenburg, Gothenburg, Sweden (Presenting author)
Co-author(s) - Danis, Ammie, University of California, Berkeley, United States of America
Keywords: art, creative archaeology, heritage, interpretation
Presentation Preference - Workshop

Heritage 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 reflect 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, and an archaeologist reflects on the artist’s interpretation, this session invites projects in which creative practice intervenes at many stages and from many directions.

TH3-13 Abstract 01
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.

TH3-13 Abstract 02
The Archaeology of Pinboards – the future and the past in ads and posters
Author - Archaeologist 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, asyntweakers 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 archaeological 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 presentation I would like to tell you all about the excavation, but I will not. This presentation will instead be your introduction to the concept of pinboard-archaeology, and during a short workshop I will let you all be a part of excavating the local community through a pinboard at the venue.

TH3-13 Abstract 03
Archaeological carpentry. Doing theory with your hands
Author - Dr. Mikkuž, Dimitrij, University of Ljubljana, Institute for the protection of Cultural heritage, Ljubljana, Slovenia (Presenting author)
Keywords: art, carpentry, theory
Presentation Preference - Oral

In the introduction to his book “Allen Phonemonology” (2012) Ian Bogost suggests that philosophers ought not to write philosophy, at least not without practicing, doing, or making. He urges engagement in carpentry: constructing artifacts that do philosophy. This is more than artistic practice, carpentry is a perspective on creative work that asks philosophical questions. Or put in another way, carpentry is what you call it when things (including art) are used or made for philosophical use. I want do explore the use of carpentry as new forms of creative practice in archaeology, playful practice, that can help us to develop and archaeological concepts.

I want to explore the use of “philosophical carpentry” using an example from my own work on archaeology of milk (Mlekuz 2015). I explore the notion of milk as an assemblage or ecology, using crafted objects. Exploring the relational nature of milk assemblage, I focus on the idea that nothing exists in and of itself, things exists only in assemblages. Things exist and take the form that they do by participating in an emergent web of materially heterogeneous relations. Use of miniatures (of bacteria, enzymes, cows, strainers, lactose, guts, milks, 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.

TH3-13 Abstract 04
Creative archaeology of modern Moscow
Author - Doctor Beliaev, Leonid, Institute of Archaeology of RAS, Moscow, Russian Federation (Presenting author)
Keywords: archaeological monuments, creative archaeology, modern Moscow
Presentation Preference - Oral

In Russian historiography there is still no custom to regard archaeological excavation as a place for creative extrascientific activity, as well as an archaeological finds obtained in the course of excavation still haven’t been regarded as a piece of art. However, they certainly are. Archaeology spontaneously induces the appearance of art objects, starting with the temporal (video and performances at the sites) and space objects (carefully planned out and methodically deepening excavations that are treated by the viewers and even by the participants themselves as a complex three-dimensional installations) and finishing with more traditional photos, sketches and drawings. In all these cases, archaeologists or the members of their team are making every effort to organize the excavation area, achieving the best light, locating the characters and generally working either as scriptwriters, or as a directors and cameraman, and certainly more often as a common draftsman.

Finally, in modern cities the archaeologist daily come in contact with the challenge of incorporating the remains of the discovered antiquities into the urban context, also doing his best as a designer. As is well-known, similar forms of 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.

TH3-13 Abstract 05
Archaeological Field Schools in the UK: What, Where and How?
Author - Roberts, Arabella, National Museum of the Royal Navy, Cranleigh, United Kingdom (Presenting author)
Keywords: current status in UK, development, field school
Presentation Preference - Oral

In this presentation I would like to tell you all about the excavation, but I will not. This presentation will instead be your introduction to the concept of pinboard-archaeology, and during a short workshop I will let you all be a part of excavating the local community through a pinboard at the venue.
Archaeological field schools are viewed as the first port of call for students aspiring to become archaeologists. On top of this, they are often major research outlets for universities and archaeological organizations, and often come to represent the sector on television and in publications. Their position and importance in the sector is well developed and, until now, viewed as well understood.

When starting research on field schools in the UK, confused responses were given to simple questions on definition, curriculum, length, cost, demographic and standards. I subsequently set out to start to answer some of these questions over three stages. The first developed the context, looking at how training in practical archaeology had developed over the last 50 years in relation to the economy, government legislation and the archaeological sector in general. The second addressed the issue of definitions, comparing the different terms used for practical training – ‘field school’, ‘course’, ‘dig’, ‘fieldwork’, ‘excavation’, etc. - and seeing where the term ‘field school’ belonged and, importantly, who belonged within it. The balance discussions from sections 1 and 2, the final section looked to real data. Drawing from the first database of archaeological field schools in the UK and from a qualitative survey of individuals who attended field schools recently, they offered an insight into the current situation of field schools in the UK today. The response demonstrated a broad confusion over the 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 requirements regulated 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, Beníjájar (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 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 way to fight the injustice derived from the integration processes at the moment of understanding.

---

**TH3-13 Abstract 07**

**Kulmin - digital dissemination of cultural heritage**

Author: Prestvold, Kristin, Sør-Trøndelag County Authority, Trondheim, Norway (Presenting author)

Keywords: digital dissemination, Kulmin

Presentation Preference - Oral

How do we inspire curiosity and interest 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 men, women and children’s encounters with the cultural heritage. The monuments and sites are made vivid and dramatic through text, audio and video on smartphones and tablets in stories based on archaeological, cultural and historical facts. These 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 Dissing, Nina, Municipality of Skanderborg, Skanderborg, Denmark

Co-author(s): Purup, Marianne, Visit Skanderborg, Ry, Denmark

Co-author(s): Hest-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 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 excavaions.

The location and the landscape is the raison d’être of the project - and locals as well as tourists are given the opportunity to experience landscape storytelling combined with world history interpreted by modern art.

eScape brings out art and cultural heritage "on location", away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.

Collaboration between specialists in Tourism, Art and Archaeology and combining the three parts on equal terms is crucial, as well as participation from locals and children. Turning people who stare into people who care – and people who dare and share.

---

**TH3-13 Abstract 09**

**Layers of living in layers of time**

Author: PhD Synnestvedt, Anita, University of Gothenburg, Gothenburg, Sweden (Presenting author)

Keywords: art and archaeology, heritage, theory and practice

Presentation Preference - Oral

In 2013 the largest urban archaeological excavation ever undertaken in West Sweden started in the area of Gamlestaden in Gothenburg. The town of “Ny Lödös”, which lay here between 1473 and 1624, is being exflected in art. The area is set to undergo major transformations. New construction activities with buildings, a new hub for public transport, walkways and bike lanes will transform the urban landscape. The archaeological dig is done behind fences. You can have a glimpse of what’s going on, peeping through little openings, but it is hard to understand – what is happening? You can go for a guided tour, but do you see the connection between now and then? Do the archaeologists care about what’s happening outside the fence while they are digging?

What is present, what is past? How can we explore the environment when space is money? In a workshop arranged in May 2015 archaeologists, musicians, artists and students investigated the environment in Gamlestaden with the aim discovering stories and contexts in the many layers of time. This investigation resulted in a video: Layers of living in layers of time. The purpose and the outcome of the video will be discussed in the presentation.
SETTLEMENT VARIABILITY AND SOCIO-ECONOMIC PROCESS

TH3-14

Theoretical and methodological perspectives in archaeology

TH3-14 Abstract 01

Farms, hamlets, villages and towns. Settlement variability in Early Modern Scandinavia

Author - Dr. Rosén, Christina, Arkeologerna SHMM, Töllsjö, Sweden (Presenting author)

Keywords: Early Modern, Scandinavia, Settlement

Presentation Preference - Oral

The meaning of words like farm, hamlet, village or town are often used to describe different kinds of settlements but they are not simple and straightforward, and the particularity of given time/space situations is of great importance. In the Early Modern setting the town becomes a kind of ideal, in different ways for different actors, while still being a relatively unusual settlement form.

We will discuss how archaeologists can identify variability and similarity at different spatial and social levels. Focus will be on examples from the Early Modern, but we are happy to include other relevant examples as well.

TH3-14 Abstract 02

Areas reserved for rich and populated by poor or melange of many factors?

Author - Dr. Sappanen, Liisa, University of Turku, Turku, Finland (Presenting author)

Keywords: socio-topography, layout, Turku, early modern, urban settlement

Presentation Preference - Oral

Research, even if focused on the same topic, is relevant and has many variables, which may change in the course of time affecting approaches, methods and results in remarkable ways. In urban contexts in Finland, archaeological practise has long been restricted by the existence of studies based on historical information, which however is not abundant or diverse. The supremacy of historical studies has especially affected the research of the early modern and modern periods in those towns with earlier history where the focus of archaeological research has been in medieval periods. During the last two decades, archaeological excavations have increased the amount of source material, which offers an interesting supplement for historical studies and cartographical information.

In this paper, the relation between research, settlement and the socio-economy of the city is discussed with an example of Turku, which is the oldest town of the present-day Finland and was one of the most important towns of the medieval and early modern period in the east coast of the Baltic Sea. However, from a utilitarian and functional perspective they differed in many aspects and because of these differences they help illustrate some of the urban settlement variabilities of this dynamic period. The spatial analysis is performed on several levels, where the spatial dimensions are examined in the towns as a whole, but also on a block level and even more thorough at plot level. The temporal part of this analysis focuses on exploring various time related processes that follow different rhythms and the possible impacts these had on the lives of the town residents. Some processes are slowed down by the inertia of society while others are more rapid, such as seasonal changes. The data from about two hundred archaeological field reports together with a theoretical orientation helps to unfold a more diverse picture of the Swedish early modern town.

TH3-14 Abstract 03

Norrköping and Kalmar: A spatiotemporal analysis of two early modern Swedish towns

Author - Agnesten, Sofia Andrine, Gothenburg university, Gothenburg, Sweden (Presenting author)

Keywords: Early modern time, Settlement variabilities, Spatio-temporality

Presentation Preference - Oral

During the early modern time, one of the most extensive phases of city transformation in Europe occurred in Sweden. This spatiotemporal analysis explores settlement variabilities and social dimensions in the two Swedish towns Norrköping and Kalmar during the time period. These were, from a Swedish Early Modern perspective, rather large towns with both having major ports on the east coast of the Baltic Sea. However, from a utilitarian and functional perspective they differed in many aspects and because of these differences they help illustrate some of the urban settlement variabilities of this dynamic period. The space analysis is performed on several levels, where the spatial dimensions are examined in the towns as a whole, but also on a block level and even more thorough at plot level. The temporal part of this analysis focuses on exploring various time related processes that follow different rhythms and the possible impacts these had on the lives of the town residents. Some processes are slowed down by the inertia of society while others are more rapid, such as seasonal changes. The data from about two hundred archaeological field reports together with a theoretical orientation helps to unfold a more diverse picture of the Swedish early modern town.

TH3-14 Abstract 04

Same name, same background, same function? Similarities and differences of the Scandinavian Husebyer

Author - Dr. Lemm, Thorsten, Stiftung Schleswig-Holsteinische Landesmuseen Schloß Gottorf, Schleswig, Germany (Presenting author)

Keywords: cultural-Historical background, royal administration, royal farm

Presentation Preference - Oral

Since the early 20th century the more than 130 hamlets or farms in Scandinavia and the Orkneys known by the name Huseby, Husby, Huseby, Huseby, Husby etc. have been a relevant topic in historical, archaeological and onomastical research, closely linked to the discussion of kingship and political administration. Espe-cially the highly frequent use of the place-name Huseby, their uneven distribution over Scandinavia, and the use of husby(ey) 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 thees on the administrative and economic structure of royal power in the Viking Age and the early Medieval Period and in theories about the early state formations. However, recently conducted detailed analyses of their cultural-historical backgrounds give reason for a much more differentiated view on the Husebyer. There are certain similarities and differences that can be observed between these sites and there must be reasons for that. Were different historical and/ or chronological backgrounds responsible for the diversity of the Husebyer? And how does this affect the widely accepted interpretation of these sites? These questions will be addressed by the paper and hopefully discussed during the session.

TH3-14 Abstract 05

Theoretical and methodological perspectives in archaeology

TH3-14 Abstract 06

Settlement variability in Early Modern Scandinavia

Author - Sappanen, Liisa, University of Turku, Turku, Finland (Presenting author)

Keywords: Settlement variability, Early Modern Period

Presentation Preference - Oral

The relation between settlement and the socio-economy has remained one of the prime topics in archaeology. However, there is no simple, straightforward link between settlement organisation and socio-economic processes. The same general form may correspond to different socio-economic situations. In the case of urban settings for instance a certain neighbourhood in a town can, at one point, be considered a slum, and during another period house individuals and families of the upper class. The general layout of the area may be almost identical, while the population, interiors and details have changed.

In this paper, the relation between research, settlement and the socio-economy of the city is discussed with an example of Turku, which is the oldest town of the present-day Finland and was one of the most important towns of the medieval and early modern period in the east coast of the Baltic Sea. The first presentations of the layout of the city are from the 1630s and span 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 with variable elements transforming the character and dynamics of different parts and remoulding the relations between them on a different scale and bearings. The paper presents answers for the following questions. What elements formed the settlement of Turku in the 16th century and what was the relation of this settlement to earlier as well as to later inhabitation of the town? What kind of picture of events and socio-economic topography can we create with the help of analysis of the evidence available by now? What was the relation between the reconstruction, extension and regeneration of the town? Still, the picture cannot be completed, but could it be made more comprehensible with correlations with other cities?
The theoretical and methodological perspectives in archaeology

One of the great challenges inherent in archaeology is the fact that what humans say, and what they do, are very often different in the same way. As such, material forms may correspond to different socio-economic phenomena, so may the reverse be true. Deterministic approaches to either as a direct informant of the other are not only reductive, they can more often than not be a logical fallacy. Settlement analysis would be more adequately served by the introduction of a triadic model proposed by Fletcher, in which settlement success is measured not only by a relationship between material form and socio-economic situation, but also by the outcome of their relationships. The case study for this paper will be the initial urban development which took place in the Baltic region during the early medieval period. New and unusual settlements of very similar form, albeit with varying emphases on elements such as ritual, royal power, politics and trade, appear across the landscape between the 7th and 9th centuries CE. This development comes ostensibly in response to the changes happening in Europe after the fall of the Roman Empire, and the establishment of new trade routes from the north is seen as a significant contributor both here and in the North Sea region. This 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, higher medieval town-like form. This process, however, is variable in its execution. The settlements, among other outcomes, experience destruction, abandonment, conquest, and re-use in conjunction with a younger settlement close by, revealing this particular space-time context as incredibly valuable in exploring the social-material-outcome triad.

TH3-14 Abstract 06
Did socio-economic developments change the landscape of Ireland?

The two greatest influences to the socio-economic landscape of Ireland in the early medieval period were the coming of Christianity and then the raiding and subsequent settling of the Vikings in the coastal emporia, such as Dublin and Waterford. But how did these events shape the socio-economic changes at this point? I hope to show that these events were in themselves, the catalyst, 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 seems to be a time of stagnant growth. The increase of crop cultivation, as well as the introduction of new technologies, such as the water mill and the curlew plough, increased production, allowing specialisation and creating a surplus, furthering a division of labour and exchange networks.

When talking about the early medieval period in Ireland, one instantly thinks of the ubiquitous ringfords, 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 ringfords did not change in morphology after this period, many being re-occupied in the later medieval period, their possible location echoed a change in their function, away from being a cattle pen to being one used to control and exploit the agricultural producers. While some have attributed the inception of souterrains as refugees from Viking raiders, I would view them as drier storehouses for grain in conjunction with a younger settlement close by, revealing this particular space-time context as incredibly valuable in exploring the social-material-outcome triad.

TH3-14 Abstract 08
Changes in crop and livestock management practices in the Kingdom of Granada

The conquest of the Kingdom of Granada means radical changes in the management of natural and agricultural areas. Consequently, there was a significant retrofitting in terms 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 violent confrontation between old and new Christians.

TH3-14 Abstract 09
A multi-proxy approach on identifying stable patterns in prehistoric times

The manner in which the dead are treated is indicative of how people saw themselves in the landscape. The transfer of bodies from family orientated graves, including feta, which were often used as boundary markers, towards community cemeteries, may indicate a changing nature of belonging, as the narrowing of the kin-group meant that less people would have been eligible for positions of power. Furthermore, many of these community cemeteries became the attention of gatherings, which once would have taken place at elder trees or next to burial mounds, showing how the church became a central player in these assemblies.

The ecclesiastical settlements which were founded from the mid-fifth century on provided Ireland with its first permanent ecclesiastical settlements. The manner in which the dead are treated is indicative of how people saw themselves in the landscape. The transfer of bodies from family orientated graves, including feta, which were often used as boundary markers, towards community cemeteries, may indicate a changing nature of belonging, as the narrowing of the kin-group meant that less people would have been eligible for positions of power. Furthermore, many of these community cemeteries became the attention of gatherings, which once would have taken place at elder trees or next to burial mounds, showing how the church became a central player in these assemblies.

The ecclesiastical settlements which were founded from the mid-fifth century on provided Ireland with its first permanent centres of production and distribution. This was, in stark contrast, to the political structure at the time, which was highly unstable, with power passing from place to place every few generations. The development of workshops, such as those at Clonard, and market places, such as at Tuam, show the influence the church had on socio-economic change and its patronage by the elites, which helped to increase their wealth and prestige, subsequently leading to the centralisation of power at a provincial level in Ireland.

TH3-14 Abstract 07
Socio-economic changes in northern Granada between Medieval and Early Modern Ages

Granada was the capital of the Nasrid Kingdom, the last Islamic emirate in Iberian Peninsula during the 13th-15th centuries. By the end of the Middle Ages, this town grew and changed its appearance due to both, the increasing of the number of people arrived from other parts of the Peninsula and the political, economical and environmental decision about how to manage its surrounding area. According with the written sources, the northern part of the city, outside of the walls, was a very productive area in where some farms and almunias were built, partly thanks to the water management. It was known as “Cortes de Aynadamar” and was described as an area with rich houses and farms, vineyards and the passage of one of the most important water channels of Granada: the ditch of Aynadamar. Granada was conquered in 1492, date that marked the end of the Christian conquest of the whole Peninsula. After that, at the beginning of the 16th c., parts of these lands in northern Granada were given to Carthusian order in order to build a monastery. Since then, in addition to the construction of a monumental monastery, the monks became owners of a large space replacing the previous Muslim owners, and they decided to change the production system, creating dry crops in terraces and wailing all domains, transforming the landscape. At the present time this area houses part of the university campus of Granada. In different excavations, it had documented here a long sequence of occupation beginning in prehistoric times and continues in Roman times when a area of pottery and ceramics workshops existed. However, the period of the Late Middle Ages and the consequences of the Christian conquest remains non well-know up to the last years.

During 2013 and 2014, was carried out a great work of renovation of roads that has permits us to conduct a great archaeological intervention among the university Campus. The remains documented in these works, along with other previous excavations and the information from written sources will serve our objectives. Our aim is to show how the suburban landscape was transformed following the Castilian conquest and the Christian colonization in the last lands of al-Andalus.
Theoretical and methodological perspectives in archaeology

TH3-14 Abstract 10
Islands on lakes – life and rituals of Slavs in Pomerania during the pogan-christianity transition
Author - Prof. Chudziak, Wojciech, Nicolaus Copernicus University, Torun, Poland
Co-author(s) - Dr. Kazmierczak, Ryszard, Nicolaus Copernicus University, Torun, Poland
Keywords: Pomerania, Islands, Religion, Slavs

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 Szczeclin, Wolin, Kolobrzeg and Gdansk. So far, little attention has been paid to the centers located on the islands of Pomerania LakeTland. However, since 2004, in the Institute of Archaeology at Nicolaus Copernicus University in Torun, 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 Zaranisko, 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)
Keywords: demographic development, settlement, social complexity

Over-simplified 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

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 Cañampa river system in today’s Northern Argentina. Questions of relationism and encounters will be addressed, but in particular the relation between settlement organization and the socioeconomic. The potentials of the concept of mode of production, in a new revised version, will be tested.

TH3-14 Abstract 13
Society in flux: Evidence from the middle/late Northern Württembergian Urnfield Culture
Author - Girotto, Chiara, University of Durham, Durham, United Kingdom (Presenting author)
Keywords: Northern Württemberg, stratification, Urnfield Culture

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 Erlentbach “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 hilttop settlements exist no correlation with settlement accumulation or clusters could be detected. Therefore it is hypothesised that the patterns of settlement were governed by exploitation of natural resources of the lowland and access to larger rivers. The importance of rivers is stressed by the pattern of hoards as they mainly appear in the Neckar region. Burials follow the settlement pattern and imply the preference of rivers and suitable soils for agriculture.

Trade had to be an important factor of the North-Württembergian societies as they never developed distinct types of metal artefacts. No export objects are known but agricultural products and salt are both possible ideas. The ability to trade suggests over production and possibly the existence of a vertical social structure.

As cremation was the prevailing burial practice vertical organisation and its impact on individuals can only be interfered by the analysis of grave goods. Early and early middle urnfield culture graves usually do not exhibit dissimilar “wealth” through grave goods. But at the cemetery of Erlentbach “Käppelesäcker” the grave of a child (7-10 years) yielded a small golden wire ring, a rare imported broken bronze bracelet, other metal objects and pottery. This finding might suggest a heritable form of social status but no other rich graves were detected in the necropolis. It is hypothesised that some individuals could accumulate more imported objects than others and some form of vertical organisation existed.

Overall the study concluded that the data of the transitional Ha A2/B1 period suggests a society in flux. First obvious differences in grave attire start to exist but the settlement pattern does not suggest any interregional forms of rulership. Instead social organisation on a smaller scale, governed by economic success could have been the starting point, leading to the later presumably hierarchical societies of the Iron Age.
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 - Dr. Maldonado, Adrián, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Co-author(s) - Orsini, Celia, Greenwich, United Kingdom (Presenting author)
Keywords: Christianity, materiality, religion
Presentation Preference - Oral

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 analyses highlight 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 02
Comparing early Christian stone monuments in north-western Europe: movement and identity
Author - Busset, Anous, University of Glasgow, Glasgow, United Kingdom (Presenting author)
Keywords: carved stones, Christianity, movement
Presentation Preference - Oral

Stone monuments have been used by people for many centuries; as a medium for expressing messages and ideals, and as a means of transforming the landscape. During the early medieval period, this tradition developed, and indeed flourished, principally at the north-western edges of Europe. With Christianisation, carved stones were 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 and ultimately their role within the Christianisation process.

The theme of movement in the landscape, and how it is created by the presence of early Christian carved stones, will be used as a common thread.

TH3-15 Abstract 03
Self Affirmation: Building new identities through contact and exchange in early medieval Northumbria
Author - Dr. Wilson, Jacqueline, University of Bristol, Bristol, United Kingdom (Presenting author)
Keywords: borderlands, early medieval Northumbria, funerary sites
Presentation Preference - Oral

Archaeological approaches to Frontier and Borderland can include a variety of dimensions for consideration, from the physicality or invisibility of boundaries, to their rearrangement over time and the ways in which they serve to create concepts of foreignness and enforce exclusion. This paper focuses on interaction in the early medieval borderland zone of Northeast England and Southeast Scotland, with reference to their British neighbours, and across the Atlantic Arc and North-western part of Scandinavia.

This paper explores how populations used the landscape to create and maintain their identity and territories during a period 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 analyses highlight 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 05
Europe of the Regions? Sailing between Scylla and Charybdis on Europe’s Atlantic Arc

TH3-16 TOWARDS DIGITAL INFRASTRUCTURES FOR OPEN, PARTICIPATORY, PUBLIC ARCHAEOLOGY
ARCHAEOLOGY OF THE BALTIC REGION

In scientific literature the term "Baltic region" is often used in either of two meanings: as the geographical region around the Baltic Sea, and as a cultural region of the Balts.

This conference theme on the Archaeology of the Baltic Region seeks interconnections of both meanings of the term "Baltic". The remains of material culture and toponymical forms demonstrate that the influence of the Baltic cultures covered the territories from contemporary Moscow to the Oder river, and from contemporary Latvia to the Ukraine and overlaps with geographical region around the Baltic Sea. Cultural and technological interactions between these two regions were important factors in the formation of Northern, Eastern and Central Europe throughout the period of the 2nd millennium BC to the 16th century AD. However, various roles played by different cultures in the development of the region remain problematic, and were heavily influenced by the nationalistic narratives of the 20th century.

Fundamental questions about the formation of the both "Baltic regions", the interconnections between Baltic, Slavic, Fino-Ugric, Germanic cultures and the rest of Europe; the impact on formation of medieval Lithuanian, Russian, Polish, German, and Swedish states will be discussed in this Theme.

This Theme is dedicated to Maria Gimbutas (1921-1994), the world-renowned Lithuanian scholar who contributed immensely to the studies of the Balts as a part of the wider Indo-European phenomenon of the "Old Europe".

ARCHAEOLOGY OF HILLFORTS IN THE BALTIC

TH4-02 Abstract 01
The continuity of hillforts in long-term perspective: a case study from south-eastern Estonia

Author - Dr. Valk, Heiki, University of Tartu, Tartu, Estonia (Presenting author)
Keywords: chronology, hillforts, long-term perspective
Presentation Preference - Oral

Hillforts have often been regarded just in the context of some definite time period – as power centres and important centres of the settlement pattern. However, not much attention has been paid to the network of hillforts as a phenomenon from a long-term perspective. The paper sheds light upon the question on the basis of a case study concerning the hillforts of south-eastern Estonia: there problem-based small-scale excavations with the aim to establish the chronology of sites were carried out on 31 hillforts, i.e. on almost all the sites, in 2015-2015. Until the late 20th century it seemed quite clear that hillforts emerged in south-eastern Estonia only since the beginning of the Viking Age. Archaeological excavations, both radiocarbon dates and finds, have, however, fully disproved the suggested model. It appears that hillforts emerged in the pre-Roman Iron Age already and were used in different time periods. However, the network of sites has greatly changed in the course of time. Many of the sites, especially those of the Early Iron Age, were of short-time use, sometimes also re-used. Only in a few cases the sites was used over a long time period. The case of south-eastern Estonia enables one to suggest that dates and chronology of hillforts, based on only external features, and not proved by results of archaeological excavations, may be most misleading.

TH4-02 Abstract 02
The evolution of hillforts in Lithuania according the C14 data

Author - Ass. prof. Zabiela, Gintautas, Klaipėda university, Klaipėda, Lithuania (Presenting author)
Keywords: C14 data, hillforts
Presentation Preference - Oral

About 200 hillforts (from about 900 known) were investigated in Lithuania until 2015. According to the data, got in time of these excavations, was made the general evolution of hillforts. The main stages of development of fortifications were designed in basis of typological dating of archaeological artefacts. Until the last decade of this century the C14 data in Lithuania were made seldom
and majority in old LSC method. Now we possess new series of these data, made in AMS mode. They allow us to correct some aspects in development of hillforts in Lithuania. Between them are the time of origin of hillforts and this development in Roman and Migration periods of Iron Age. C14 data permit to precise some aspects in this development, but not change the general schema.

The new C14 data, given from hillforts in neighbouring countries also estimate for creating the modern model of development of hillforts in South-East Baltic region.

TH4-02 Abstract 03

The application of geophysical investigations in Baltic hillforts

Author - Dr. Masaal, Sebastian, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Dr. Hinkov, Gertseva, 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 framework of this cooperation also several hillforts (Taurapilis, Opstaniai/Vilkijiskiai, Jąaka) have been investigated. In almost all cases 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 Opstaniai/Vilkijiskiai (fortification ditch) or Jąaka/Sudmantai (stone wall fortification). These new results clearly show the potential of noninvasive, especially geophysical methods for archaeological purposes; not just for archaeological research, but also for cultural heritage management. The geomagnetic data can be used differently as basis for specific archaeological investigations – which have for example already been conducted in Taurapilis – and for the development of future concepts and strategies for the protection and preservation of these sites. The paper 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), Juodynas (the early Iron Age – the Early Middle Ages) and Petronišiai (1st-3rd century AD – Historical times) hillforts or in the closest vicinities of mentioned monuments.

An intensive human activity began in the Impiltis area, W Lithuania, shortly before 900 AD, generally coinciding with the onset of the “Medieval Warm Period” and the first appearance of rye (Secale cereale) and flax (Linum usitatissimum) pollen grains is the earliest in the region, which indicates the development of permanent agriculture using some field rotation system. Herewith the palaeobotanical evidence establishes that human interference in the Skomantai included mixed pastoral/arable land use with Secale cereals and Fagopyrum cultivation during the Early Middle Ages. Occurrence of the latter plant is in a positive correlation with the regional signal (mid-13th c. Vilnius Lower Castle, E Lithuania) suggesting active trade and exchange.

A large number of paleogeographic reconstructions based on pollen data were made for the coast of the Baltic Sea by European and Russian scientists. However, such reconstructions for Sambia Peninsula are still lacking. Archaeological studies of the Sambian expedition (RA S 2005, 2010-2013) in the area of the village of Kukkovo (Kringitten) have identified a number of natural and man-made objects that are suitable for palynological studies. These are cultural layers, pits and moats fillings, ancient soils, buried under the deluvial sediments, as well as small peatlands. All of these objects have been dated using archaeological or radiocarbon methods. Pollen analysis of the sediments allowed us to reconstruct in general the vegetation changes of the North of the Sambian Peninsula over the past 2000 years. It is shown that prior to the intensive agricultural development periglacial coniferous-deciduous forests with spruce, pine, oak, linden, hornbeam, elm were widespread, along with black alder forests in the lowlands. The mass extermation of upland forests was associated with Roman time (about 1800 BP). In the following, Prussian, period (about 1300 BP), pollen data indicates a continuation of deforestation - decrease or complete disappearance of the black alder, which is a result, apparently, of the amelioration of lowland swamps for pastures and fields. Pollen data indicates the absolute predominance of open agricultural landscapes also during the subsequent periods, until the 20th century. Some features of the land use of different epochs, such as the cultivation of various crops, have been revealed. Also, pollen studies allowed us to identify some local episodes of vegetation changes associated with the history of individual archaeological sites.

In addition to the late Holocene sediments associated with human activities, well-preserved organic sediments with radiocarbon dates 8500-10000 BP were found in the floodplain of the creek near the hillfort. Pollen analysis allows us to reconstruct the local environmental conditions at the boundary of the Peatocene and Holocene: the gradual transformation of a shallow freshwater reservoir in the marsh and than in the fen, while pine forests dominate the surrounding landscapes.

TH4-02 Abstract 06

Hillforts Kringitten and Dievens in Zamland - versions of interpretations

Author - PhD Krieke, Nikolay, Institute of Archaeology RAM, Moscow, Russian Federation (Presenting author)
Co-author(s) - Ershova, Ekaterina, Moscow State University, Moscow, Russian Federation
Keywords: hillfort, pottery, radiocarbon
Presentation Preference - Oral

The presentation deals with two strongholds located in Zamland close to the coast of Baltic Sea near each other. Test excavation of ramparts and ditches showed not very complicated stratigraphy. Hand made pottery of Prussian type is in the Western part of the ditch. Radiocarbon date 1240 +/-30 (Gin-10099) fits well with traditional archaeological date of Prussian ceramic. Main question we tried to answer was if these strongholds were the places of concentration of population and activities? First part of the question got the negative answer. Second part of the question got not so clear. Various forms of reconstructed activities are discussed in report.

TH4-02 Abstract 07

Drilling the past - New approaches in dating hillforts in the Baltic region

Author - Dr. Ibsen, Timo, ZBA, Schleswig, Germany (Presenting author)
Keywords: C14 dating, hillforts, Kaliningrad Region
Presentation Preference - Oral

Though most of the more than 2500 hillforts in the Baltic Region are mapped and discussed on a military-strategical 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 Kaliningradskaia Oblast a part of the Russian Federation, shows a significant lack of data.

For instance, for the Sambia peninsula we know approximately 90 hillforts, from which only 22 have been examined by surveys in 1996-1997. 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 palaeo-ecology and geomagnetism is an important tool in this area.
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 is 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 abandonment of the northern building with the concentrated shafts’ rests and bone finds. The analysis of aforementioned groups of finds is compared to recent research and spatial analyses by Latvian and Estonian archaeologists of archaeological context of Asva, Ridala and Ķivutkalns hillforts. In addition, distribution of early hillforts and early Bronze Age cemeteries in the East Baltic region and its chronological character are analyzed. Typologically most of the earliest finds from the hillforts are attributed to PN-VI, with exception to the bone pins with nail-shaped head and Majolie type bronze pin that indicate a possible end of PII. Casting molds for socketed axes from Narkūnai, Gauja, Sēja, Kārļupe, Visoki, Kursa and Brikuti hillforts, and casting molds for spearheads from Asva, Brikuti and Ķivutkalns hillforts are one of the earliest evidences, dated to PN-VI, of locally executed metallurgy in East Baltic region. The histograpical classic route of Daugava river seems to attract most of the early metalworkers. Casting molds for Māleri-type socketed axes are an essential evidence of metallurgical activities in the hillforts. The latter casting molds, like the rest of the technical ceramics types, are scarce, with similar amounts in Narkūnai and Krivitsalts and one newly found in the National Museum of Lithuania from Gauja hillfort. However, the Māleri-type bronze axes are not specific to the East Baltic region, on the contrast the axes are mostly found in Scandinavia or in Upper Võgõ region of the inseparable Azorino-type axes. Furthermore, spatial analysis of Narkūnai hillfort technical ceramics indicate that the Māleri-type bronze axes have been cast on two different occasions, therefore making some ground for the itinerant metalworkers’ hypothesis. The aim of the paper is to reconsider the emergence and character of early hillforts in the East Baltic region concentrating the spatial analysis of bone, ceramic and metal artefacts, and the emergence of locally executed metallurgy as a relevant process.
The study deals with the sites of the early Iron Age in the area between the Oka and Volga (East European Plain). This area was inhabited by tribes of the so-called 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 Dyakovo culture hill-forts dated to the end of sub-boreal climatic period which is characterized by climate cooling, compared with the previous, and the change of deciduous forests with fir. This period continuous to 500’s BC and covers the first phase of life in the hill-fort. Next climatic period Subatlantic characterized by even more cooling and moistening climate. It 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.

**Keywords:** hillforts, Iron age, Spatial analysis
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 scientific methods. These cairns have so far only been discussed as burial sites but due to our recent archaeological excavations in relation to three of the largest cairn environments on Gotland (oggerdårren, Oggerdårren and Hägården) and re-examination of the material excavated at Kauparverjö new knowledge about these places have been generated. Our investigations show that these monuments go beyond the function as only burial sites. This paper present a new approach to analyse and discuss the ritual practices indicated by our recent excavation at these sites that allow us to understand them both as burial and ritual sites in a changing physical and cultural environment during several thousand years.

The appearance of the Trzciniec culture (Trzciniec Cultural Cycle) in Lithuania and its role in the formation process of Bronze Age cultures is still a controversial question at the present stage of research. The investigation of this culture started only a few decades ago even though Trzciniec culture artefacts have been known in Lithuania for a long time. The archaeological material of this culture is known from almost 20 sites in current Lithuanian territory. Individual pots, clusters of pottery and talismanic objects are usually found on these long-term lived sites. The ornamental motifs on the pottery in all the groups of Trzciniec Culture are the most important criterion for identification. However, the conspicuous influence of neighboring simultaneous cultures can be seen in this pottery. Its background was no doubt Globular Amphora and Corded Ware Cultures with influences of the Narva and Nemunas Cultures in Lithuania.

There are more individual sites which scattered over the northern area far from the main Trzciniec Culture territory (Lithuania, Latvia, Kaliningrad district). One may reasonably ask how these finds should be evaluated as ‘islands’ of Trzciniec culture (1), as a reason to include Lithuania in the Trzciniec culture’s range (2) or as the result of the influence or penetration of cultures linked to this culture (3).

Therefore, the Trzciniec culture in Lithuania’s territory could be treated as one of the most influential phenomena of the Middle Bronze Age. This paper analyses various aspects of the concept and chronology of the culture and presents a history of the research in the culture’s territory. Priority is given to archaeological pottery, the main indicator for cultural identification. In addition, this paper analyses the Bronze Age cultural situation in the Eastern Baltic region and raises the question of whether the Trzciniec culture existed in Lithuania and in what form.

The aim of the project was to digitally re-construct the stone wall enclosure at Gothemshammer and to understand its location in the surrounding landscape. Excavations into the feature uncovered its internal construction details, as well as, dateable materials from domestic animals and charcoal. Fifteen AMS dates gave a clear and somewhat unsuspected age of the structure to the mid Bronze Age ca. 900-700 BC. The northern end of the wall is to be found at the end of a steep cliff, and since the southern end of the wall ended in an open slightly slanting terrain it suggested that it might have ended at the sea level when built to demarcate a point in the landscape. We therefore reconstructed the water level using LiDAR data indicating that the former sea level at mid Bronze Age could be set at about 10 m above the current sea level in this area. To place the wall enclosure in its Bronze Age context we also plotted other features tied to the same time, such as stone ship settings, cairns, other wall enclosures, and known Bronze Age settlements, non-burial context as single stray find locations. To do so, I combined archive materials, topography, shore displacement data and information on soil properties. The results point to observable patterns in artefact distribution, with a preference for water bodies, wetlands and slopes. This implies not random losses, but wilful deposition activity.

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.

Archaeology as an academic discipline studying material culture can easily follow contacts between people from different regions if some evidence has been left behind – usually something material which can be studied by scientific means. There are numerous examples of bronze artefacts found, for instance, in what is today Estonia that demonstrate long-distance contacts with the mid-Volga region, the Caucasus, Scandinavia, etc. We know about these contacts because of some materialised witnesses. There is no doubt that each item of foreign origin must be carefully studied in order to avoid the trap of a novice detector – everything that seems evident at first sight need not be true. The presentation will discuss several artefacts with this purpose of analysing the probable nature of contacts that yielded those items.
But what about those contacts that did not leave any material evidence behind? Actually, archaeology can sometimes be quite inefficient in trying to describe the wholeness of contacts between two neighbouring (ethnic) groups. For instance, there is not much preserved materialised evidence to prove close contacts between Finnic and Baltic communities in the Bronze Age, Eastern Baltic. Yet, linguistic evidence in the face of numerous so-called unnecessary or luxury Baltic loanwords in Finnic clearly shows that the contacts between two groups from different language families were really dense and long-lasting, and even mixed settlement with bilingual everyday communication must have been widespread. This circumstance provides every good reason to think that material cultures of Finnic and at least one part of the Baltic-speaking populations were not distinguishable from each other. The presentation is an attempt to search for such a period, region, and material culture that could correspond to linguistic – that is, non-material – evidence of a mixed bilingual population.

TH4-04 Abstract 09
Landscape transformations at the turn of Bronze and Iron Age at the southern coast of Baltic Sea
Author - Niedźwiedzka, Kamil, University of Gdańsk, Gdańsk, Poland (Presenting author)
Keywords: Eastern Pomerania, human impact, Pomeranian culture
Presentation Preference - Oral

According to the archaeological data, intensive cultural changes took place in Eastern Pomerania (Northern Poland) at the end of the Bronze Age and at the beginning of Iron Age. From the point of view of traditional archaeology, these changes were connected with the origins of Pomeranian culture, which had developed on the background of local group of Lusatian culture, identified with Umfield tradition. Appearance of Pomeranian culture was tied with new patterns in burial rite: people started to put ashes of their deceased in impressive urns with images of faces (so-called face urns) which afterwards were buried in a cist graves. In contrast to the previous rite, Pomeranian culture cemeteries were smaller but more numerous - the dense network of flat burial grounds covered Eastern Pomerania. On the other hand, large barrow cemeteries from the end of the Bronze Age ceased to be used. This may indicate that these changes must have had a strong impact on the local cultural landscape. Moreover, baseline on the pollen analyses it is visible that Pomeranian culture has a significant impact on the natural environment, what can be linked with their economic activity.

The main aim of this paper will be presenting endeavour undertaken to reconstruct natural environment together with the cultural landscape of Eastern Pomerania and attempt to answer the question – how intense and what kind of influence on the local surroundings had societies from the Late Bronze and Early Iron Age. It is obvious that new tools which are available for archaeologists, such as GIS software, LiDAR data and modern aerial photography, together with results of paleoecological studies offer a significant support in researches conducted on the Late Bronze and Early Iron Age landscape of Eastern Pomerania. It could also give a good background to present described changes from a wider – cultural, social, and environmental perspective.

TH4-04 Abstract 10
The Early Roman Iron Age site at Ellinmäki, Rauma Finland
Author - PhD Uotila, Kari, Muuritutkimus, Kaarina, Finland (Presenting author)
Keywords: digital documentation, early Roman, iron finds
Presentation Preference - Poster

During the years 2015-2019 of field studies both ground-penetrating radar and aerial photographic with a drone were tested. Documentation of the caims was mostly done with laser scanning technique. This is the largest 3D-documented Early Roman Iron Age site in Finland. The site was 3,5 hectares and it was surveyed in several phases. New caims 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 caims. Based on the data of this the total amount of caims can be estimated to have been about 300 and about 200 of these have been man made. From between the stone mounds a concentration of over 2500 mortar-pottery shards was found. This has been interpreted as a part of a settlement site. In this area also pieces of burned bone were excavated. From these bones of fish, seal and one bone from either a sheep or a goat were identified. Macrofossil analysis revealed seeds of barley and wheat. The most surprising finds were two iron bracelets, two pieces from iron knives and two small pieces of iron. These were all found from a caim located at the highest outcrop of rock in the area. The caim was covered with red sandstone slabs. There was also another caim 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.
Pre-Roman Age tarand graves - trends and specialities

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 both internal and external influences of the Early Iron Age society.

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, 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.

Extraordinary in death – the Hoby graves

A richly furnished inhumation grave dating from the Early Roman Iron Age was discovered in 1920 at Hoby, Western Lolland, Denmark. The extraordinary ensemble of grave goods encompasses tableware and a drinking set of Italian origin, two unique silver beakers showing scenes from Homer’s Iliad and Germanic items made of bronze and precious metal. Another find from a comparable property is a bronze vessel dated to the final part of the Pre-Roman Iron Age which was submitted in 1897 to the National Museum. Inside the vessel lay burnt bones and parts of an iron scabbard. It turned up during gravel extraction but unfortunately the exact find site is not recorded in the archives.

The preparation and equipping of a grave happened according to certain patterns and standards – especially in such an outstanding case like the famous Hoby grave. An analysis of such burials is therefore closely linked to cultural and social as well as individual dimension of the deceased and the interring community. Hints to simple graves or a burial site from the Old Roman Iron Age are still lacking in the area around Hoby. However a contemporary settlement site has been located in close proximity to the grave. Thus a good basis is created to investigate the social and structural connection between an unusual grave complex and a nearby settlement.
In Holy on Lolland, a chieftain's grave from the Early Roman Iron Age was found in 1920. The grave is one of the richest dating back to this period from Northern Europe. In 1999, pottery and black soil were observed in the area NW of this rich grave, and minor excavations in 2002 revealed a settlement from the same period as the richest graves in the area. In the period from 2010 to 2015, larger excavations have been carried out in the settlement and activity area. These investigations have been carried out in collaboration between the Museum Lolland-Falster, Center for Baltic and Scandinavian Archaeology (ZBSA), and the National Museum.

The settlement and activity area cover an area about 100x150 meters (328x492 feet), and about a third of this area has been excavated up until now. On larger parts of the Holy settlement, culture layer is preserved in a thickness of up to 0.6 meters (1.9 feet). It contains large amount of pottery and preserved animal bones besides the remains of clay floors. The preliminary studies show that the building at Holy represents a larger community/village. The long houses are located in EW rows. To the North, the settlement is bordered by an activity area with a large water-filled pit surrounded by numerous smaller pits, deposited bone mashes and ash. The activity area and the house constructions are contemporaneous.

In this present paper, the settlement will be presented, and the current state of our research concerning settlement structure, economy, and cultural perspectives will be presented. Finally, the results are compared to some of the contemporary settlements from current Danish territory.

TH4-05 Abstract 03

Rosenhorning - a central site in Middle Jutland

Author - Olsen, Martin, Rinthor, Museum Midtjylland; Rening, Denmark (Presenting author)

Keywords - Central settlement, Lübsowgraves

Presentation Preference - Oral

Central settlement and hinterland - life and death in the 1 Century AD. A complex of rich graves, farms and villages. In the central part of Jutland. Museum Midtjylland has excavated a number of sites that all relate to an extraordinary rich site, Rosenhorning. This central site is a settlement that covers most of the period from 500 BC through 200 AD, but with a "highlight" in period BtA. At this time a grave yard is constructed which includes a number of extraordinary rich graves with gravegoods and constructions that place them in a region of high social inclusion. It links them to other regional groups in Denmark, Europe and to the political turbulence we see in those years. At the same time, this group of people expresses their status in the construction of a "farmstead" that is in every respect extraordinary, with features that both illustrate their social, regional and international status.

Additionally, we do have a number of sites in the "hinterland", some are excavated and others known through geophysical surveys. This group includes both settlements as well as graveyards. Hereby we get an insight into an organization that is highly synchronized.

TH4-05 Abstract 04

Studying the Iron Age Settlements in Lithuania: Current Issues and Future Directions

Author - Dr. Vengalis, Rokas, Lithuanian History Institute, Vilnius, Lithuania (Presenting author)

Keywords - prehistoric settlements, settlement pattern, survey

Presentation Preference - Oral

The research of the Iron Age in Lithuania (which is dated to the 1st millennium A.D. according to the periodization of this region) was focused only on the ethno-history for a long time and that was the reason why the attention of archaeologists was directed to the studies of the burial sites. Because of such trend we could say very little about communities of that period, except for their ethnicity. There was some knowledge about the social structure, trade directions and ideology as well, but practically there was no information about the subsistence, the economy, settlement patterns and other themes. In recent decades this trend begins to change little by little – researchers begin to take interest in topics which were not analyzed before and at the same time the attention is drawn to the fact that the material which we collected up to now does not allow to analyse the newly emerging issues. This 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 area of the Eastern Lithuanian Barrow Culture and one relatively well preserved and excavated complex was chosen for the further case study. Analytical tasks were as follows: 1) to define the possible extent of the settlement site by combining tradition archaeological methods with geo-archaeological research data and micro-topography; 2) to assess the resultant area against the density coefficient, deriving this coefficient: a) from the data of excavated settlements, b) on analogy with contemporary widely excavated settlements with well-defined structural pattern from neighbouring countries.

TH4-05 Abstract 06

Relation or isolation? Spaces of the living and the dead in the Iron Age East Lithuania

Author - Dr. 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 archaeology, but until now they are viewed as isolated rather than related to each other. In other words, the spaces of the living and the dead are perceived as two different worlds rather than an arena of permanent interaction. The fact that very few flat settlements of this period are yet known does not contribute to research, but this can be advanced only by large-scale surveys, and this is the task for the 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. B. Rolvell (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 arises 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 coastal region 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 creational cemetery very near each other from different time periods.

It is possible to study the change of burial customs, cultural and trade contacts as well as pieces of everyday life of the prehistoric community from the Pre-Roman Iron Age until the end of the Viking Age based on the Aakre Kivivare complex. Because most of the sites have been excavated, it can be assumed that the place was the centre of a bigger region during 1300 years. Therefore assumptions of a larger society of the time periods can also be made.

The chronology, characteristics of the monuments as well as items excavated from the sites will be discussed. Based on that, assumptions of the changing identity, religion and cultural and trade contacts of the community will be made.
CULTURAL ENCOUNTERS: PERSPECTIVES ON MOBILITY AND CULTURAL IDENTITIES IN THE BALTIC SEA REGION 7000-2300 BC

The mentioned time period in the North-European prehistory is very dynamic, and is acknowledged by three more significant subsistence economies. These economies are generally defined as to relate to different cultural groups and varying social customs: the farming Funnel Beakers, the seal hunting and fishing people of the Pitted Ware Culture, and the cattle herders of the Battle Axe Culture. Local and regional variations of these cultural groups and subsistence economies are present in all countries around the Baltic Sea region during this time period. Issues about the social relations and contacts between these different cultural expressions have for a long time been vividly discussed in archaeology. However, developed archaeological methods and new results from by example strontium isotope and ancient DNA-analyses, have revealed that the mobility among people around the Baltic Sea in prehistory appears to have been more intense than previously thought. What impact does developed archaeological methods and results generate on the traditional interpretations of cultural encounters? How could these results be related to the archaeological material? The issue is important from the perspective that the archaeological knowledge we produce, by necessity also must be open for scientific revision. This session, therefore, aims to explore and discuss developed perspectives that could challenge the traditional interpretations of cultural encounters and borders among cultural groups in the Baltic Sea region during 4000-2300 BC. The presentations in the session may enrich archaeology on a theoretical and methodological level, but will also have the possibility to influence the wider cultural discussions concerning the contemporary constructions of cultural identities in Europe. The outcome of this session may also provide stronger arguments for a necessary understanding of the conditions of the contemporary and multicultural Europe.

Ski Archaeology or tracking genesis & evolution of mobility technology across Prehistoric Eurasia

The evidence of mobility in Post-Glacial northern Europe and Asia is well established. More than 200 ski, pole, sled, canoe finds and rock carving motives, 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) woodworked transport means, for hunters-gatherers or early nomadic herders and their survival equipment, through new landscapes to adapt.

Keywords: Ski 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) woodworked transport means, for hunters-gatherers or early nomadic herders and their survival equipment, through new landscapes to adapt.

Travels & skates, dugout canoes & grooved runners, skis & boars, early backpacks & later coracles, rafts & early wheeled canoes are many examples of technological kinship, finding after eons in vehicles or dwelling shapes, recorded by subarctic ethnographies across three continents: fur-shipment skis, snow shoes & bark canoes, sledges & toboggans, transportable tents & seasonal huts. In use over the very long term, they all ascend 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 skis' 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 & spindles - 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.

Keywords: Prehistoric TransportMeans, Ski Archaeology, Prehistoric Transport Means, Ski-Mobility-Wood Technology

Presentation Preference: Oral

The effect of Landscape Scale Forcing Factors on the Earliest Neolithization in the Baltic Basin

The northern European Neolithic (4000-2000 BC) has been one of the great problems to be solved in Northern European Neolithic studies. This problem is especially difficult to reconstruct in the Baltic region where traditional explanations of migration, diffusion, leasing and demographic pressures break down in the face of exceptionally slow temporal development of the Neolithic Paradigm Shift in culture across relatively small geographical distances.

In this paper a modification is made to Marek Zvelebil’s Homo habitats model, were used to verify the hypothesis that for the case of the formation of the Funnelbeaker (TRB) on the Kajavian Plain the substitution phase of agricultural adoption is short relative to the phases of agricultural availability and agricultural consolidation because it was triggered by landscape level forcing events of various intensities and durations.

Furthermore it is posited that the contemporary dissolution of the 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 intercalary 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.

Keywords: Climate Change, Cultural Interaction, Neolithization

Presentation Preference: Oral

Neolithic Cultural Encounters in the Territory of the South Lithuania (4200-2000 BC)

Archaeological and multidisciplinary research over the last 15 years denied the approach of dynamic evolution, revealed intensive mobility and interaction among various societies of hunter-gatherers and farmers. In the territory of the South Lithuania cultural encounters appear to have been the most intensive. Favorable geographical conditions and rare finds found in a surface of the area caused an emergence of numerous multlider settlements of hunters-gatherers. Archaeological material of Dubčiai, Nemunas, Narva andmaybe Combi-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 find artifacts of different chronological complexes are mixed in this kind of environment. Nevertheless, by applying paleo-geographical environment reconstruction, spatial-statistical analyses and correlating data of radiocarbon analysis, research of landscape micro-topographical, floral and faunal features as well as ethno-archaeology and experimental archaeology patterns, it is possible to extract and date different complexes, define activities of subsistence economy and behavior of the societies.

Keywords: cultural encounters, Neolithic hunter-gatherers, South Lithuania

Presentation Preference: Oral

Pottery traditions and cultural processes in the Gulf of Finland region in the 3 mil. BC

The eastern part of the Gulf of Finland region is rather important for the study of cultural and historical processes of the end of IV - III millennium BC. This territory from the ancient time was located in a contact zone among the areas of different archaeological cultures and pottery traditions. During the mentioned period, which in Russia is usually called the Early Metal Period (EM), bearers of Comb and Corded Ware pottery traditions coexisted here. The area was peripheral for the both of them. Current study is devoted to the reconstruction of cultural and historical processes, reflected in ceramic material. Among the sources of the study there were fragments of more than 200 vessels from 36 archaeological sites from the eastern part of the Gulf of Finland region.
Combi 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 alkaloidal crystals is the most influential. This material is present in the Baltic Sea region and it is probable that it was used in the Baltic Sea region to improve the quality of the pottery. The tempering of the pottery with this material is reflected in the pottery tradition of the Baltic Sea region.

The typological similarities of the Jokiniemi clay figurines as compared to anthropomorphic clay figurines found in the Baltic Sea region are striking. These three clay figurines represent the oldest realistic anthropomorphic clay figurines in Finland and are part of a PhD project that examines how animal and human worlds co-existed, confronted, and affected each other during the Stone Age in the Baltic Sea region. The relationships 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 accomodation, combination of animal species and fragmentation of body parts appear to have significant importance when burying the dead in Jokiniemi. In contrast to previous research on hunter-gather burials, which concentrated solely on humans, this project provides a complementary perspective that stresses a more holistic view by looking at the animal remains. This will develop a deeper understanding of the relationship of humans towards animals during the Stone Age.

**TH4-06 Abstract 08**

**The enigmatic Dolmen on the Island of Gotland**

Author: Frasier, Magdalena, Uppsala University, Campus Gotland, Visby, Sweden (Presenting author)

Co-author(s): Sanchez Quinto, Federico, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden

Co-author(s): Gunther, Torsten, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden

Co-author(s): Knutsson, Kjell, Archaeology and Ancient History, Uppsala University, Campus Gotland, Visby, Sweden

Co-author(s): Arturström, Anders, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden

Co-author(s): Jakobsson, Mattias, Evolutionary Biology Centre, Uppsala University, Uppsala, Sweden

Keywords: Genomics, PWC, TRB

Presentation Preference: Oral

The Ansarve Dolmen in Tofa Parish on Gotland is the eastern most of its kind in Scandinavia. Dolmens and passage graves in Northern mainland Europe are associated with the Funnel Beaker culture (TRB) and activity sites with TRB pottery have been found on the island from the Early Neolithic time period. We present new radiocarbon dating and isotopic results, which show that the Dolmen was used for an extended time period, yet contemporary archaeological remains from the Funnel Beaker culture are scarce on the island at a time when the Pitted Ware culture was widespread along the coastal areas. Previous genetic research has shown that hunter-gather individuals from the Middle Neolithic Pitted Ware culture on Gotland had different biogeographic affinity to that of contemporary TRB individuals from the Swedish mainland (Bjöglund et al. 2012; 2014). Here we use genomics to investigate the relationship of individuals from these two different cultural contexts on the same Island, over time.

**TH4-06 Abstract 09**

**Re-thinking Bourdieus: New Perspectives on the Pitted Ware Culture on Gotland in the Middle Neolithic**

Author: Dr. Andersson, Anna-Carin, University of Gothenburg, Gothenburg, Sweden (Presenting author)

Keywords: Bourdieu, Method, Pitted Ware Culture

Presentation Preference: Oral

This paper relates to the issue: what impact does developed archaeological methods and results generate on traditional interpretations of mobility and cultural encounters? The aim is to present a new method of interpretation, which I have developed in my thesis. The method has its foundation in a re-thinking and an archaeological adaption of the concepts and reasoning of the French sociologist Pierre Bourdieu. Such application and adaption of the concepts of Bourdieu on an archaeological material as is suggested, has previously never been done before. Though the reasoning of Bourdieu have been used in studies of archaeological material, an examination of a number of these earlier studies surprisingly revealed a superficial use of the concepts, where insufficient considerations have been taken to the complexity of Bourdieu’s reasoning. The most common approach in previous research is to only use Bourdieu’s concept of Habitus, which is used without contextualization and according to the ad hoc principle. Through an adaption of the concepts in accordance with a contextualization of the living conditions and the
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 Västerbotten, Östergotland 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. Malmström, Helena, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: Corded Ware, Funnel Beaker, Pitted Ware
Presentation Preference: Oral

The general picture that has emerged from genomic pre-historic human data indicates a larger portion of differentiation between different groups than previously anticipated. One 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 descendents from the Funnel Beaker population is highly unlikely, considering that the two groups are as differentiated as the most distant populations of Europe today. Recently, it has also been shown that individuals from a Corded Ware/Battle Axe context, which post-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 would further increase if stable isotope 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 Walburd type and the origin of Primorskaya Culture
Author: Dr. Zaltman, Edwin, 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, Ushakovoye 1-5) – the settlements of the Walburd type. Their equipment greatly differs from the previously known Primorskaya Culture complexes.

Unlike many other Primorskaya Culture settlements, the remains of the deepened up to 0.60 m into the subsoil and up to 35 m at length constructions are preserved in Pribrezhnoye. The main part of the eighteen C-14 datings, obtained from charcoal, bones, and hazelnut shell found in the lower and the upper levels of construction, corresponds with the interval 3100-2900 BC. These datings do not comply with the traditional concepts of Primorskaya Culture existence as it coincides with phase II 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 Wulstkeistöpfe, 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 Ushakovoye 3 and Ushakovoye 2, which are situated 8 km to the south of Pribrezhnoye, belongs to the post-classical phase. In accordance with the radiocarbon data, obtained from the charcoal of the upper and the middle parts of the cultural layer, the monuments existed in the interval 2400-2200/2100 BC (post-classical phase). As a whole, ceramic forms and the ornamentation had transformed into widespread forms from adjoining territories, though some ware types, inherited from the previous periods, preserved.

Wood and charcoal from the lower layer in Ushakovoye 3 showed the interval 2850-2710 BC. The majority of the pottery types repeat the ceramic forms from the lower level of the constructions in Pribrezhnoye. A complete identity can also be found in the technology. The ornamentation is represented by cord semi-ovals, triangles and waves. The prevailing type of the ornament is the combination of simple horizontal cord imprints and pits or dimples. Thus, taking into account the striking peculiarity of the local cultural complex and the early C-14 datings, we can assume the existence of the protophase in the development of Primorskaya Culture, which theoretically refers to the period 3100-2900 BC. We can assume, that the original impulse came from GAC, though the main forms of wide-mouthed pots and boal-shaped vessels are most likely related to Cordet Culture. Pecularities 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.
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.Donelaido

Author - Tõrv, Mari, Tartu, Estonia (Presenting author)
Co-author(s) - Meadows, John, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany
Co-author(s) - Erikson, Gunilla, Department of Archaeology and Classical Studies, Stockholm University, Stockholm, Sweden
Co-author(s) - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig, Germany

Keywords: Northern Forest Zone, hunter-gatherer-fishers, radiocarbon dates, stable isotopes

Presentation Preference - Regular session

Hunter-gatherer-fishers occupied the Northern Forest Zone (the Baltic region and northern European Russia) throughout the Holocene. In addition to settlement evidence these communities left a rich mortuary record, including long-lived cemeteries with up to hundreds of inhumations. Human remains provide a remarkable isotopic archive, whose potential to reveal aspects such as diet, health and mobility at different timescales is increasingly recognised. There is also a growing awareness that aquatic foods are often 14C-depleted compared to terrestrial resources, and that to interpret radiocarbon dates from human remains we therefore need to understand individual diets.

Where isotopic signatures of potential foods are different, isotopic analysis of human remains can show differences in diet between individuals, and dietary variation within the lifetime of a single individual. Where isotopic signatures of food resources vary geographically, isotopic variations between and within human remains may show that different groups exploited distinct territories or resources, and that individuals were more or less mobile. Such reconstructions are valid only if enough samples of wild animals and plant foods, of known provenance and of the same age as the human remains, have been analysed to create relevant isotopic baselines. We also need to understand how food isotopic signatures are converted into isotope signals in human tissues, and to realistically model the uncertainties in all estimates.

This session welcomes contributions on methodological developments (e.g. novel sampling and analysis techniques, refinement of modelling) and case studies in different periods during the Stone Age and geographical settings within the study region, including the transition from foraging to farming. We aim to show where most progress has been made recently, and where we have the most still to do, geographically, chronologically, and in terms of species coverage and different isotopic systems.

TH4-07 Abstract 01
Looking for patterns in prehistoric diets – is there an objective approach?

Author - Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany, Germany (Presenting author)
Co-author(s) - Čečina, Violeta, Institute of Lithuanian History at the University of Latvia, Riga, Latvia
Co-author(s) - Lübke, Harald, Centre for Baltic and Scandinavian Archaeology, Germany

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 Burtneka, Latvia, to show which of the inferred 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. Erikson, Gunilla, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden (Presenting author)
Co-author(s) - Lidén, Kerstin, Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden

Keywords: Mesolithic, Motala, stable isotopes

Presentation Preference - Oral

Taking the two Mesolithic sites in Motala – Kanaljorden and Strandvågen – as a starting point, stable isotope data from a wide range of Mesolithic sites both east and west of the Baltic Sea will be discussed. The large variability in carbon, nitrogen, sulphur and strontium isotope values reflects not only the diversity in available resources, but also differences in mobility patterns and cultural choices, as well as chronological change.

TH4-07 Abstract 03
New Stable Isotope Analysis from Lake Lubāns Stone Age sites, South-eastern Latvia

Author - Legzdina, Dardegas, Institute of Latvian History, University of Latvia, Riga, Latvia (Presenting author)
Co-author(s) - Zariņa, Gunita, Institute of Latvian History, University of Latvia, Riga, Latvia
Co-author(s) - Looze, Iza B., Latvian Academy of Sciences, Riga, Latvia
Co-author(s) - Lee-Thorp, Julia, Research Laboratory for Archaeology and the History of Art, Oxford University, Oxford, United Kingdom

Keywords: animal bones, stable isotopes, Stone Age

Presentation Preference - Oral

A long-standing systematic archaeological research at the Lake Lubāns valley have revealed the region to be an area with a number of significant Stone Age settlements and burial grounds. So far, 27 Mesolithic and Neolithic sites have been detected, and in 18 of them archaeological excavations have been conducted. The excavations, starting from mid-20th century up to nowadays have provided a rich and diverse animal bone material from settlements, as well as human burials. However, there have been no previous attempts to approach the material with stable isotopic analysis method.

In this paper we present animal bone carbon and nitrogen stable isotope analysis results from different sites and introduce a discussion about the local isotope ecology of the Lake Lubāns valley.

TH4-07 Abstract 04
How close is close? Faunal baselines in the Eastern Baltic region

Author - Tõrv, Mari, University of Tartu, Tartu, Estonia (Presenting author)
Co-author(s) - Zariņa, Gunita, Institute of Latvian History, University of Latvia, Riga, Latvia
Co-author(s) - Liela, Marja, Stockholm University, Stockholm, Sweden
Co-author(s) - Tõrv, Mari, University of Tartu, Tartu, Estonia

Keywords: faunal baseline, hunter-gatherers, Eastern Baltic, stable carbon and nitrogen isotopes

Presentation Preference - Oral

Stable isotope analysis of carbon (δ13C) and nitrogen (δ15N) of human and faunal bone collagen from archaeological contexts is an established method to address questions of past diets, and mobility patterns. In the context of the Estonian Stone Age, only human bone collagen has been systematically targeted for stable isotope analysis. However, to comprehend and analyse the isotope ratios of human bone collagen any particular site in detail, it is important to know faunal isotopic composition to provide a relevant temporal baseline. It is not a novel statement, but the question of “how close is close enough” still remains.

In the paper I will examine both the spatial and temporal requirements for a faunal baseline. The theoretical discussion will be complemented by examples from my own research on Estonian hunter-gatherers and published data from other hunter-gatherer sites in the Eastern Baltic.

TH4-07 Abstract 05
Diet and childhood residential mobility at Rinnukalns, Latvia, in the 4th millennium cal BC

Author - Meadows, John, Centre for Baltic and Scandinavian Archaeology, Germany, Germany (Presenting author)
The freshwater shell midden at Rīņņukalns, 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 late 4th millennium cal BC. Dietary stable isotope in bone collagen from the crania of 3 individuals buried in the midden, and also from all 4 individuals dated to this period at the nearby Zvīņciems 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 collagen can provide a record of diet at a much finer temporal resolution than bone, however, and we are therefore sampling the molars of one Rīņņukalns individual to see whether it is possible to detect changes of diet and even of residence, at the quasi-annual scale permitted by this method. This approach may also allow the estimated date of death to be refined, as the radiocarbon age of collagen with a more terrestrial or marine isotopic signature will be less affected by dietary reservoir effects.

TH4-07 Abstract 06
The Neolithization of the north European lowlands:
Archaeometric results on human remains
Author - Dr. Piezonka, Henning, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Prof. Dr. Terberger, Thomas, Lower Saxony State Office for Cultural Heritage, Hannover, Germany
Co-author(s) - Lüth, Friedrich, German Archaeological Institute, Berlin, Germany
Keywords: 13C/15N isotopic analysis, Neolithization, North European lowlands
Presentation Preference - Oral

In northern Central Europe, the advance of the Neolithic way of life halted at the northern margin of the loess distribution for almost an entire millennium, before in the late 5th and 4th millennia cal BC, the farming economy started to spread into the northern lowlands. Here it is essential the Funnel Beaker Culture plays a key role for the question of an intermingling of the last hunter-gatherers and the southern farmers: There are indications that in the north, local forager communities continued to exist alongside the newly arrived farmers for centuries. Further east, the foraging way of life formed the basis of subsistence even longer. The last decade saw increasing progress in the analysis of human remains by achaeometric methods. Here we present results of systematic stable isotope (13C/15N) studies on Stone Age human remains from northern Central and Eastern Europe. The individuals cover the time period from the Preboreal to the Subboreal (c. 9500 to 2000 calBC).

By determining information on the diet of the sampled individuals and linking it to chronological information, the data set sheds light on changes in subsistence economy against the background of cultural developments and absolute chronology. The results of the isotope analyses show a considerable consumption of fresh water resources during the Mesolithic and (early) Neolithic. It is interesting to notice that a major shift towards farming economy in northern Central Europe is visible not before the 3rd millennium calBC.

TH4-07 Abstract 07
Deconstructing the conception of pre-Neolithic farming in SE Baltic
Author - Dr. Pitcairnienė, Gedrė, Vilnius University, Vilnius, Lithuania (Presenting author)
Co-author(s) - Kiesielienė, Dalia, Nature research centre, Vilnius, Lithuania
Co-author(s) - Pitcairnienė, Gytis, Lithuanian institute of history, Vilnius, Lithuania
Keywords: SE Baltic, Subneolithic, Subsistence
Presentation Preference - Oral

This paper is a critical evaluation of zooarchaeological, micromorphological, 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 ignores fresh water reservoir effect when dating bulk samples of lacustrine sediments, unawareness 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 3200/3100 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 (later: ZC) is phenomenon which absorbs researchers from one hundred years. In spite of it still it is known not more than a few peat bog sites of mentioned archaeological unit in three areas separated with not very great distances in the Northeastern Poland and in the Kaliningrad Oblast. As of today it seems like the range of the ZC is impossible to determine credible. What is most riveting is to figure out its origins especially due to establish proveniences of pottery making. This is because it seems the ZC was one of those archaeological cultures with mixed ceramic traditions (probably not only them) from both – agricultural and hunter-gatherers-fishers worlds.

To this day there is no 14C carbon dates estimated and published for sites of the ZC. What is more important main groups of it where taken as a series from stratigraphical record from two epizonic sites. This allows to use Bayesian modelling in creating absolute chronology of the ZC. It is worthwhile to mention that there are sets of 14C measurements taken from pottery sherd, which were carried out in different traditions, and they also may be combined in some statistical calculations.

Bayesian statistic have been using in analysing and interpreting radiocarbon data for a quite long time and is quickly developing part of archaeological research. Yet there is many obstacles in correct applying and understanding its results, mainly due to radiocarbon dating disadvantages. In case of the ZC peat bog site’s stratigraphy is also an difficulty. Although after analyzing all of accessible data is it possible to establish a chronology of ZC. Moreover it enable to correlate it with other subneolithic cultures from the Southeast Baltic region (like Narva, Neman, Pitt-Comb Ware cultures). There are available radiocarbon measurements for all of them however in diversified amount specially depending on a region and ceramic style. Therefore it is worthwhile to consider also Neolithic impact onto the ZC particularly the Funnel Beaker Culture group which have a significant range of spread, and will be used in the study. Noticeable set of its radiocarbon dates constitutes one of the best backrounds for joining into discussion for pottery’s origin in the ZC.

TH4-07 Abstract 09
Human occupation of the SE Baltic region: first trends from the middle- upper paleolithic transition
Author - Dr. Druzhchina, Olga, V. V. Kondratiev Museum of Nature and History, Kalingrad, Kalingrad Oblast, Russian Federation (Presenting author)
Co-author(s) - Molochkov, Anatoly, Research Laboratory for Quaternary Geochronology, Institute of Geology, Tallinn, Estonia
Keywords: Luminescence Dating (IR-O SL), Middle Upper Paleolithic, MIS 3
Presentation Preference - Poster

The territory of the south-eastern Baltic region might be described as lying on the margins of the classical Paleolithic world. No Middle and Upper Paleolithic sites have been found so far in this part of Europe, and on the basis of available data the initial habitation of the region has been related to the Bugian warming or Greenland interstadial sub-stage GI-1a, which began in northern Europe at about 14.7 cal ka BP. The recent discovery of traces of human occupation at the Ryadino-5 archaeological site (north-eastern part of the Kalingrad region RF) has made possible a significant revision of our understanding of the early human occupation of the SE Baltic region.

The dates obtained for the culture-bearing horizon place the Ryadino site among the most ancient sites of the transitional period from Middle to Upper Paleolithic in Europe such as Kostenki 12 (53–52 ka), Khyzievo 1 (55–48 ka), Wittendorf II (43.5 ka), Geijerskatestra 43–42 ka), Kent’s Cave 44–41 ka, etc. At the same time, the Ryadino site is the most northern (55º 01’N) of all those mentioned above. Further north the only sites with slightly younger artefacts are found along the western flank of the northern Ural Mountains: Mamontovaya Kurya (43–40 ka BP) and Zaozer’e (39–37 ka BP).

The lithic assemblage of the Ryadino site comprises more than 2000 flints and includes various kinds of tools, but whereas the chronology of the site has been established with confidence, the cultural attribution of the flint assemblage has yet to be identified. In the concerned time period, three groups of assemblages have been assigned to the earliest modern peopling of the
Evidence that fishing was a central element of the Mesolithic subsistence economy, both at Zamostje and at other sites, is suggested by 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.

Keywords: Russian Ac, St. Petersburg, Russian Federation

Loose human bones from cultural layers at Zamostje, central Russia (c.6500–4000 cal BC), provide strong evidence for the preservation, and the recovery of millions of animal bones from the five cultural layers. Aside from a woman’s humerus, the human remains are all fragments of the cranial, 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. 6500–5900 cal BC), although one of the dated fragments was found in the Early Neolithic (Upper Volga ceramic) layer. Radiocarbon dating also allowed the measurement of dietary stable isotopes, which suggest 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.

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 the Era of Greatness.

During the 18th century Gothenburg was a major port and trade center, but the city was still a small town with a population of around 10,000. In the early 19th century, Gothenburg was transformed into a major industrial city, and the fortifications were expanded to protect the city from possible attacks from the sea.

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 was generally planned in stages. The new fortifications were built to secure the borders and to fortify towns and other strategic key positions. The period between 1550 and 1750 saw immense investments when castles and town walls were modernized. The theoretical perspectives were developed on the Continent, but found a wide field of application in the Baltic region.

The new fortresses and protected towns were formed by the combination of military presence and civil life. But even the major cities were characterized by military aspects. Still the visions of the authorities met with harsh economic realities. Did the fortifications built match what was intended? However, what is needed today is a holistic approach to the “ideal cities” created by military states like Sweden and her neighbors.

The last decades have witnessed a re-establishment of contacts within the region. Today it is desirable to address themes from a common past. Once again the Baltic Sea unites the countries bordering its shores. Research focused on the Early Modern Period with its multifaceted development can give us an important background, thus providing new perspectives on our own time.

This session welcomes papers dealing with research in fortresses and fortified towns of the Baltic and Scandinavian regions. We hope for a wide approach, with themes ranging from the development of modern fortifications and siege archaeology to the study of life and death in these fortified cities. The social and material aspects of human existence are seen as central for the understanding of contexts like these. This makes the session well suited for contributions with an interdisciplinary approach.

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)

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 the Era of Greatness.

During the 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 the Era of Greatness.

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 was generally planned in stages. This paper will give an archaeological perspective of this massive project and show how continental theories of fortification were applied and customized for the local conditions.
The town Kalmar is situated in the southeast of Sweden and was together with Göteborg and Jönköping the most important outposts in the early Great Power period. As decisions were made in 1640 to move the town Kalmar to a new and strategically more beneficial location, the town would also be surrounded with a modern fortification. Several archaeological excavations have been made in the last years on one of the nine bastions, Carusus Norus (Charles IX). In addition contemporary maps have been studied describing the work in progress. This has concluded that the work on this bastion alone prolonged over a century, and it took more than 50 years to finish the whole fortification. This puts questions on an efficient defense for the town, its population and administration. The studies revealed solutions to problems regarding the construction, and also the development over the years to keep up with modern types of the construction of bastions.

In the beginning of the 17th century the vulnerable southern border of Sweden was defended by modern fortresses. While Kalmar and Elfborg protected the coastline, Jönköping castle should secure the inland routes towards the central parts of the realm. The site was strategically well suited, being a major crossroad with access to waterways. The castle was originally a Franciscan convent, taken over by the Crown after the Reformation and fortified with walls, dry moats and corner towers. Vastly enlarged and modernized in the first half of the 17th century, this artillary fortress and its outskirts 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 has 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 bastions of Christian 4th
Author - MA Simonsen, Rikke, Copenhagen Museum, Copenhagen V, Denmark (Presenting author)
Keywords: Baltic region, Fortifications
Presentation Preference - Oral
Christian 4th is considered one of the most influential Danish kings. From 1598-1648 he ruled the kingdom Denmark-Norway, which included the southern part of Sweden and the islands of Gotland and Saaremaa. This gave Christian 4th control of the waterways to the Baltic Sea and a huge profit on the Sound toll – an important factor in the king for fighting for the Baltic Sea dominion and engaging the country in several wars. Christian 4th made great effort to modernize the fortifications of the realm introducing the bastioned fortification on a big scale. He built more than 30 fortresses and fortified towns within today’s Denmark, Norway, Sweden, Germany and Estonia.

This paper wants to look into what concerns influenced the king’s strategy of building fortifications which had a strong focus on the Baltic region. Was the king demonstrating a general plan for the safety of the realm or was he reacting to sudden and changing threats? Many plans were made for building new fortifications and renovating old ones. Why were the plans carried out in some places but changes given up in others? Were finances, incompetence, enemy threats or international politics responsible for the fate of the fortifications?

The Early Modern Fortifications of Halmstad
Author - Lena, Bäggtun, Regional Museum Halland, Halmstad, Sweden (Presenting author)
Keywords: early modern, fortifications
Presentation Preference - Oral
Halmstad, situated in the former eastern part of the Danish kingdom, was from the beginning of the early 14th century a simply fortified town built on royal ground. I had a strategic position by the mouth of the river Nissan and the important road that led to the Swedish town Jönköping. Halmstad was also situated in a province that was bounded by Sweden. Several times during the 15th and the beginning of 16th centuries the town was forced to open the gates for the Swedish army. Halmstad was reinforced in the middle of 16th century and a new fortification was erected between 1588-1605 under the leadership of the Dutch master builder-architect Hans van Steenwinkel and after his death in 1601 succeeded by Willem Cornelssen. The layout of the new fortificationsystem made it possible for the Danish king Christian IV to rebuild the town with a renaissance plan after a devastating fire in 1619. The defensive works was reinforced during the following decades. Through the Peace Treaty in Brömsehus 1645 Halmstad and the province of Halland became Swedish. The fortifications were maintained during the end of 17th century but started slowly to dilapidate and was demolished in 1735 by the military.

Kuressaare fortress (Estonia) as an example of the transformation of bastion fortifications
Author - Ruk, Ragnar, Tallinn University, Aruküla, Estonia (Presenting author)
Keywords: 17th century, Baltic Sea hegemony, bastion fortifications
Presentation Preference - Oral
Recent archaeological investigations have revealed, that the development of the bastion fortifications of Kuressaare fortress was more complicated than has been presumed. Kuressaare, located on the Saaremaa Island in the Baltic Sea, is one of the few medieval fortresses in historical Livonia where the modernization of the fortifications continued also after the Livonian War (1558–83). It was a foothold, in succession, of Denmark, Sweden and Russia.
Breaching walls and sinking ships: experimental evidence

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 fortress. 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 conceptually, and analyze the fortification-theoretical arguments for these costly and labor-consuming undertakings.

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 Notheborg (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 to hillfort. After the Great Northern War it lost its significance.

The ruins of the hillfort (situated now near the village Goroditschje) 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.

Author - PhD, Fred, Vasa Museum, Stockholm, Sweden (Presenting author)
Keywords: Gun, Siege, Experimental archaeology
Presentation Preference - Oral

In 2014, the Vasa Museum carried out an extensive field trial of a replica 24-pounder bronze demi-cannon, based on those found on the warship Vasa. The gun was developed in 1620 as a mobile heavy field piece, adapted to naval use in 1626 for Vasa and her sister ships. This gun later equipped both the largest warships and field artillery units during the Thirty Years War, ending 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.

Author - PhD, Fred, Vasa Museum, Stockholm, Sweden (Presenting author)
Keywords: Gun, Siege, Experimental archaeology
Presentation Preference - Oral

Prussian, early modern fortification in Pomerania, a result of the Prussian - Swedish struggle

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 fortress, Stettin and the entire estuary of the Oder river. But all of Pomerania was again a witness to Prussian-Swedish hostility during the Seven Years’ War. Its last act was the annexation of Swedish Hither Pomerania with Stralsund in 1750.

One of the key factors for this struggle were the fortifications. They were built during the wars (field fortifications) and during peace as well (fortresses, autonomous forts or sconces and fortified cities). Siege warfare assumed an important role in 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. After from Kolberg a fortress in Rügenwald 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 intensive, more than half of the Prussian engineering corps was involved in this large construction site. Just as in the previous period, also after 1720, another fortress was considered (in Stargard), but it also was never built. After 1720 the Prussian engineers had to handle the problem of a large number of smaller and weaker fortified complexes in the Hither Pomerania, “inherited” from Sweden, such as cities with bastion fortifications (Wolin, Damm, Cammin in Pommern, Neu Warp, Demmin, Dammgarn and Ansalt), or single strongpoints such as sconces in Penemünde, Ankämker Fehr, Beinemünd and Divenau. Only some of them were modernized (Penemünde and Ankämker 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 (casemates for guns in the flanks of bastions in Rügenwald); modern, French inspired, connected with the activity of Hugenot engineers such as Cayart or Montargues, and the solutions influenced by Scandinavian military architecture (powder magazines in Stettin, similar to those in Copenhagen).

Author - MA, PhD Student Koivikko, Minna, The National Board of Antiquities of Finland, Helsinki, Finland (Presenting author)
Keywords: Baltic Sea, fortification, maritime
Presentation Preference - Oral

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 (Helsinksi) and Degerby (Lovisa) 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.

Author - Wernberg, Tom, Gothenburg City Museum, Gothenburg, Sweden (Presenting author)
Co-author(s) - Sandin, Mata, Rö Göteborg Natur- och kulturkooperativ, Gothenburg, Sweden
Keywords: 17th century, Castle, Siege archaeology
Presentation Preference - Oral

The primary characteristics of siege archaeology are that the remains in question are often from a relatively short period of time and that the events are not frequently documented, and in that case particularly by the victors. In recent years battlefield archaeology has had, at least in Sweden, a major boom, but the archaeology of sieges and siegeworks has been in the shadows.

In this paper, we present the siege of the royal castle of Älvsborg 1612 during the Kalmar War, and the archaeology of certain events during this siege.

The royal castle of Älvsborg was of great importance for royal power. It secured the corridor of land that provided the crucial westward passage for Sweden. The castle and its fortifications are strategically located on a cliff at the mouth of the river Göta. The castle is an important and widely known part of Swedish history and is best known for two exceptionally large tributes paid
The excavations aimed at examining structures belonging to the castle's early modern fortifications. Some features were revealed, such as a rebellion, the moat, and the covered way. In addition to these, an extensive assembly of artifacts that can be directly linked to the Danish siege of Åbo in 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 besieger's approach (basj), and mines, and one of the castle's defilers' countermines.

During this project it has been possible to link some of the archaeological remains to actual events described in the historical sources thus strengthening the actual narrative.

---

The city wall in Nya Lödöse

Author - Archaeologist Svensson, Pia, National Historical Museums, Malmö, Sweden (Presenting author)
Co-author(s) - Bakunic, Imela, Rö Göteborg Natur och Kulturhistoriska; Göteborg, Sweden
Keywords: Early Modern Town, Material culture, Rampart/Palisade
Presentation Preference - Oral

In 2013 the largest urban archaeological excavation ever undertaken on the west coast of Sweden started in the Old Town (Gamlastadg), Gothenburg. The town of New Lübeck/Nya Lüdöse, at the mouth of Göta river, which lay here between 1473 and 1624, is still being excavated. Twice before, in the 1910s and 1960s, archaeological excavations were carried out, mainly in the northern parts of the town. During the first excavation, parts of the northern moat were also recorded. Since then, more recently, further smaller investigations have been carried out. In 2015 we had the opportunity to explore much larger areas southwest of the town. Underneath the modern disturbance and an 1800s construction debris and foundation, we had the opportunity to record remains of the city wall. This area consisted of the following structures: a putative gatehouse, a palisade, parts of the ramparts and the appointing moat, as well as a bridge foundation in the moat. Having excavated the remains and the parts of the city wall (as well as the remains of the town), we now have a significant body of material reflecting daily life in the town of Nya Lüdöse. Organic materials, construction waste and the practical use of the moat in the handling of various materials, for example flax-netting, are all evidenced. Subsequently, we address the question of how the construction of the ramparts affected the people in Nya Lüdöse and what was its real purpose? We present the preliminary results and take a closer look into how the construction of this town limit affected the town and its population.

---

The Outdating of Medieval Fortifications – The Castle of Raseborg and the Town Wall of Vyborg

Author - PhD docent Haggren, Georg, University of Helsinki, Espoo, Finland (Presenting author)
Keywords: Castle, Town wall, Fortifications, Medieval
Presentation Preference - Oral

The castle of Raseborg (Finland) and the town of Vyborg (Russia) both locate on the northern coast of the Gulf of Finland. Raseborg was built in the 1370s by the Swedes and during the next 150 years the castle was gradually enlarged. The town of Vyborg situated close to the eastern border of the Swedish realm and it was continuously threatened by the Russians. There was an older castle close to the town of Vyborg but in the 1470s the town itself was fortified too. From now on high walls surrounded the medieval town.

When Raseborg was founded fire arms were not yet in use along the northern Baltic Sea. A century later when Vyborg was surrounded by the walls fire arms were known but on those days most of them were light weapons making no harm to stone structures.

In dawn of the early modern era, the role of the fire arms had changed. New guns were heavier and more effective than the earlier ones. Simultaneously the range of the fire arms had become much longer. Old medieval fortifications offered not anymore a safe heaven. The new era meant remarkable changes for the old fortifications. The castle of Raseborg had lost its military importance already in the 1520s. In 1550 King Gustaf Vasa made a decision to abandon the old castle and build a modern one called Helsingborg in his new town called Helsinki. This was a part of his large castle building program but in the case of Helsingborg the King was not able to realize his 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 Lorenz Stobaus was ordered to modernize the fortifications. The outdated town walls were now pulled down. Fortunately, before he began replacing the fortifications Stobaus documented the old structures offering later generations a possibility to get an overview of the Europe’s northernmost medieval town wall.

---

The western boundary as seen at Rådhuspladsen (Townhall square)

Author - Lyne, Ed, Museum of Copenhagen, Brønshøj, Denmark (Presenting author)
Keywords: Bastion, City Gate, Fortifications
Presentation Preference - Oral

Prior to excavations carried out at Rådhuspladsen in 2011/2012, relatively little was known with certainty about Copenhagen's former western boundary. What knowledge was available mainly stemmed from cartographic sources and historical references, as well as present day street layout (particularly Vester Voldgade). The first map however was only drawn in 1590, and the first historical references for this area date to the later 1530s, when Vesterport (the western gate) is mentioned for the first time. Part of the aim of this excavation was to confirm or reject existing ideas about the city's border to the west, where it was placed, how it was constructed and when, and how it changed through time.

The excavations at Rådhuspladsen carried out in advance of the Metro Cityring, offered an unprecedented opportunity to examine the remains of the fortifications along Copenhagen's western boundary, and as will be discussed here, the evidence unearthed has been extensive and very illuminating regarding the ongoing changes made to this boundary through the centuries. The historical evidence, previous archaeological observations and the new evidence as documented in 2011/2012 will all be outlined, in an attempt to achieve as complete an account of the story of this boundary as possible.
TH4-09

Past Animal and Hum an Relationships Around the Baltic

Friday, 2 September 2016, 09:00-16:00
Faculty of Philology, Room 107

Author: Prof. Makowiecki, Daniel, Nicolaus Copernicus University in Toruń
Co-author(s): - Małgorzata Rozwadowska, University of Gdańsk

Keywords: - Archaeology, culture, 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 in 70's and 80's. There are also two archaeological and synthetic works about past Polish fauna by Petr Wysoki (1985, 1994). However in present research authors revisit old records and opinions on this topic. Special attention will be also paid to fusion of archeozoological, historical and ethnographical knowledge. It will be possible thanks to considering the time, space and category of archaeological contexts. Therefore the picture of medieval hunting, which was strictly related to the social status, will be possible to obtain. In this context it is important to emphasize special species such as red deer, elk, wild boar or brown bear. Crucial role played also aquatic mammals like beaver and otter, and its use as a fur-bearing animals. Apart from considerations on cultural aspects some osteometric observations will be performed. Measurements will be used for detecting the diachronic and synchronous trends in body size changes.
A critical appraisal of using relative bone weights of reindeer from archaeological sites

Author: Prof. Bartosiewicz, Lasić, 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 underestimated in developing such methods. The argument against their uncritical use is the changing specific weight of bone during diagenesis which presumes estimating absolute quantities of meat and even comparisons between bone deposits of different preservation.

Reichstein (1994) used the relative weights of elements in complete skeletons for cattle, sheep and pig as standards in analyzing the summarized fragment weights of elements in archaeological assemblages, thus implying the criterion of homogeneous preservation is met. Aside from NISP, weight often is the only information available in fragmented materials for estimating the representation of various body parts in food refuse. In this paper Reichstein’s method is extended to reindeer, a meat source of key importance in Palaeolithic Europe and throughout the history of the northern Baltic region and adjacent areas. Skeletal element weights of a mature male were chosen against whose percentage 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.

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. Szmidt, Marzena, Adam Mickiewicz University in Poznań & Poznań Archaeological Museum, Poznań, Poland

Keywords: Neolithic, Poland, Zooarchaeology

Presentation Preference - Oral

The paper explores the role of pig in ritual communities associated with Globular Amphora Culture (GAC) at the turn of 4th millennium BC on the Polish Plain. Distinct ceremonial practices involving domestic animals are well-documented at sites linked to this culture, including commonly documented practice of so-called cattle burials. Pigs play also an important role for GAC communities, and are also present in burial practice; however, the role of this species in other ritual activities, including females is largely under-explored. Taking into account new evidence from Globular Amphora Culture at Widziszewo in Greater Poland region we aim to explore this issue. The deposit excavated in one of pits at this site consisted of a tight cluster of remains of six pig carcasses, disarticulated and consumed in distinctive and standardised manner during a short- time event. The evidence from Widziszewo represents hitherto undocumented aspect of ritual activity of GAC communities, and has no direct analogies in the Polish Plain.This page has been clipped and torn. Changes to the text are difficult to discern. Please refer to the original text for a clear view of the content.
TH4 Archæology of the Baltic region

TH4-09 Abstract 10
Reindeers in Lithuania: a technological study of antlers artefacts

Author - Daugnora, Linas, Klajpeda University, Klajpeda, Lithuania (Presenting author)
Co-author(s) - Gimininkas, Algirdas, Klajpeda University, Klajpeda, Lithuania
Keywords: Lithuania, Lyngby type axe, reindeer antler

Presentation Preference - Oral

In the Lithuanian territory found 32 skeletal bones and manufactured artefacts of reindeers (Rangifer tarandus). Between them in 2014-2016 three Lyngby type implements made out of reindeer antler were found within territory of Lithuania. One of the Lyngby type axes dating back to the 4400 to 4200 BC, the other two - 12 000 BC - to Late Allerød - Younger Dryas period. All other articles dating to Younger Dryas period. Trisolaric, stable isotope, radiocarbon dating, morphological examination on the implements carried out in Klajpeda University laboratories tells us that the one of them was made out of adult reindeer antler and was used as an axe. Wear marks indicate their use as a working tip. The other two was made of reindeer and was used as a hammers connection with leather and fur. Portable Confocal Scanning Light Microscope and Computer tomography scan of a reindeer antler artefacts illustrated of the anisotropic orientation of mineralized collagen fibers. These studies demonstrated the hierarchical structure of reindeer antlers. The trabecular bone is anisotropic, with aligned channels directed parallel to the long axis of the antler beam. Technological research has shown that stoutness articles, as Lyngby type axes, were made of reindeer male antler and hammers. - from female antler, because both sexes are members of the same species, and the properties of their antlers could, therefore, have emerged under similar pressures and constraints through evolution. This is confirmed by a reindeer antlers made of hardware functional purpose, which is to date the Northern European researchers were not analyzed until now.

TH4-09 Abstract 11
Late Neolithic V-perforated buttons from a female burial in SE Poland - revisiting a case study

Author - Wrnicka, 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 revise 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 archeometric techniques (conventional microscopy, SEM, microCT) can reveal structural micro-features and properties facilitating raw material identification. It was so in the case of eleven V-perforated bone buttons from a Bell Beaker female grave found at the Sandomierz-Zawichost Hill site in south-eastern Poland. Low power microscopic approach revealed qualitative features indicating that the osseous material used in the manufacture of these buttons might be animal dentine (ivory). If confirmed, it would link this eastern Bell Beaker enclave to the Iberian Peninsula, where the use of ivory for the manufacture of V-perforated buttons is well-known.

In order to test this hypothesis, different analytic non-destructive and low-invasive techniques of imaging and morphometrics were employed: conventional microscopy (high and low power approach), scanning electron microscopy with energy-dispersive X-ray spectroscopy (SEM-EDS) and micro-computed tomography (microCT). The results were cross-checked using Zooroarcheology 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 - Rainnamae, Eve, University of Tartu, Tartu, Estonia (Presenting author)

Co-author(s) - Linnamäe, Liis, Tallinn University, Archaeological Research Collection, Tallinn, Estonia

Keywords: Animal husbandry, Estonia, Zooarchaeology

Presentation Preference - Oral

During the last few years Estonian zooarchaeology has focused on several distinct topics, including the Late Bronze Age Avea settlement in Saaremaa island, and the Late Iron Age elite habitation site in the mainland Viljandi followed by the transition to the Middle Ages. Medieval assemblages have been analysed in numbers, considering both mammal, bird and fish remains. The results have contributed, for example, to the pattern of long distance fish trade, everyday life of the order castles, as well as revealed small matters of daily animal husbandry. Research on ancient mitochondrial DNA has elucidated the development of sheep husbandry from the Late Bronze Age onwards, while as a closer look on animal tooth and bone persisted have given new information on the perception and rituality the past people had in relation to the natural world. Short overview of this vast span of themes will be given in the presentation, with an objective to open up possible collaboration and discussion on zooarchaeological research in the Baltic.

TH4-09 Abstract 13
The use of aquatic resources by Early Mesolithic foragers in southern Scandinavia

Author - Boethius, Adam, Lund University, Lund, Sweden (Presenting author)

Keywords: Early Mesolithic, Fish, Foraging subsistence

Presentation Preference – Oral

A long tradition in the research of prehistoric southern Scandinavia recognizes a full use of aquatic resources in the Late Mesolithic Ertebølle culture (5500-4900 BC). Coastal sites are frequently found containing well-preserved fish bones, and isotopic values from human collagen indicate a high dietary intake of marine resources. However, recent finds and new methodologies suggest that the view of a terrestrial focused diet in the Early Mesolithic period (9500-8600 BC) can be reinterpreted and the use of freshwater resources is found to be more important than previously known. Aquatic resources can therefore be seen to be a major source of sustenance for foraging societies in Scandinavia much earlier than has been realized previously. In Norje Sunnansund, an Early Mesolithic site located in Blekinge, south-eastern Sweden, large amounts of fish bones were found that have been used to estimate the amount of fish being caught at the site, by analyzing different rates of taphonomic loss. The results from the excavated part of the settlement suggest that at least 60 tons of fish were caught. The large amount of caught fish and the evidence of the means of preparing and storing them form the earliest example of a large scale fishing society, and the knowledge required to catch and prepare this volume of fish has further implications on a more structural societal level. A structured society is a prerequisite for the development of sedentism and enables large groups of people to gather together over an extended time period. Conservative dietary estimations from the recovered fish bone material suggest that enough fish were caught to sustain 100 adults, living solely on fish, for over 4 years.

TH4-09 Abstract 14
Zooarchaeological Data and the Historical Sources of Livestock and Breeding at Kurtuvėnai Manor

Author - Pakkonyi, József, University of Klajpeda, Šaukėlių “Auda” Museum, Klajpeda, Lithuania (Presenting author)

Keywords: livestock, manor, zooarcheology

Presentation Preference - Oral

Kurtuvėnai Manor – one of the first fifteenth century’s Manors established in Lithuania, which has been region’s economic and cultural center more than 450 years. In order to understand the livestock, breeding goals and practices at this manor at the time, this research combines an examination of relevant documentary of XV – XX centuries (inventory books of Kurtuvėnai Manor and information from letters) evidence with a careful osteological analysis of 3027 bones and their fragments (XV – XIX centuries), gained in archaeological excavations.

Although the size of animal farm varied during different periods nevertheless similar trends are observed. According to the observed data, it can be noticed that the smallest farm existed in the seventeenth century (this tendency was influenced by wars, famine and plague). Animal husbandry of Kurtuvėnai Manor was one of the strongest in Samogitia during the management period of the richest Samogitia’s noblemen’s (XVI century – Skaidelis, XVIII century – Nagurskis, XIX century – Plateraitis). This can
be explained by the economic power of the owners’ estate. During XV – XX centuries livestock was the main source of meat in comparison with wild animals or birds. This data indicates the importance of meat (pork, beef, poultry, fish) and production of milk. The butchery marks 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 nobleman’s table and also was a splendid entertainment. Mostly hunted animals were deer (Cervus elaphus), elk (Alces alces) and wild boars (Sus scrofa). Zoological research and data of inventory books confirm that here lived the rich noblemen who ate a high-quality meat.

This affected by the material well-being of strong noblemen and their dependence on the nobility of the Samogitian affluent circle. For example, in 1563 Stanislawa Skaliska sent 60 partidges for Prussian Duke Albrecht, three years later he sent 100 partidges. We also know that the householders of manors of the seventeenth century already took care of animal husbandry and production of meat. 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 cared for, grew only on larger manors. But this innovation spread slowly. Recently, we have integrated our investigations of the excavated bones with technical and analytical development to gain an all-round perspective on the zooarchaeological data and different methods of zooarchaeology. As the past researchers, we have to try to realize the full potential of zooarchaeological data and different methods of zooarchaeology.

Archaeoology of Port Towns in Poland

Between 9th and 10th century strong port centers had been established at the southern Baltic Sea. Some of them played a key role in the history of Pomerania and of Poland. We can list, among others, Gdańsk, Kolobrzeg, Szczecin, and Wloclaw. Each of these centers was developing in a different cultural and environmental context. Archaeological research suggests that the development of the port was a very significant factor for the economic development of the area – not only on the local scale, but also on the national and international scale. 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 archaeozoological data. The effect will be to indicate the differences and similarities in the strategies for supply, and to consider the significance of mammals, birds and fish in the historically changing political, cultural and social reality of these centers in the Middle Ages.

Birds and people on polish seaside in Middle Ages

Polish seaside is characterized by different environmental conditions than the rest of the country. Societies living there since early prehistoric times exploited its resources for food supply and for trade purposes. Beside fishes and mammals also birds have played an important role in farming and hunting economy. Although the studies on importance of this group of animals in Polish areas have been taken up rarely so far. This paper is focused on breeding and hunting for birds during the Middle Ages in Poland. Although the studies on importance of this group of animals in Polish areas have been taken up rarely so far. This paper is focused on breeding and hunting for birds during the Middle Ages in Poland.

How to process meat for a 17th century warship

The 17th century warship Vasa was launched in 1628 in the time where Sweden was on the rise to their stormaktstiden, the time of their greatest power, but the ship capsized around 20 minutes after the launch. This catastrophic event let to one of the best preserved wrecks of all time and provides the opportunity to study a fauna assemblage in the context of a highly complex movable war machine, which would have built a small floating village with over 400 inhabitants and a diverted social structure.

More than 2200 mammal bone fragments could be mapped and especially analyzed within the ship, showing the main provision storage in the hold and distributed spots of presumably personal food at the upper gundeck as well as some smaller bone assemblages from the provision of special individuals or groups. Another 800 fragments must be considered as only partly reliable since they lost their context information or were found outside the wreck.

All bones were, if possible, identified with taxa, skeletal element and side, showing a dominant amount of cattle, some pig and sheep/goat bones and a small amount of game and birds. The only probably not food-related bones are 5 cat bones.

Evolutionary history of Baltic seals inferred from the analysis of historical and subfossil samples

Evolutionary history of Baltic seals inferred from the analysis of historical and subfossil samples

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 extant and sympatric, closely related seal species may help understand the reasons for extinction. In this study we analysed population genetic changes in Baltic harp seals and three extant Baltic seal species: ringed seals Pusa hispida, grey seals Halichoerus grypus, and harbour seals Phoca vitulina during the Holocene. Each extant species showed a decline in the number of mtDNA haplotypes and haplotype diversity, seal species.
Since 1950s 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 Kreiļi, Budžanka, Jurizdikā I and II, Kreiļi burial-ground were led by Rauls Šmērle, Francis Zagorski, Lūcijā Vainoka, who confirmed that the territory around the lake was inhabited during the Middle Stone Age. But after few years of surveying archaeological R. Šmērle found more story find concentration sites all around the lake that could also have been a settlements - Baltijs point, Baznīcuksgauja island, Harpūnu island. Jurizdika I, II, Kale, Kubulova, Lomžuļa, Ludza town, Stālevikas I, II, Šļūpsnē, Ulste un Viļāti (Drūti). Material use-wear was important in Stone Age but only used material depends of climate and accessible animal species. Environment combined with material use-wear technology was an important part of Stone Age people lifestyle so it is important to see correlation between worked bone and antler tools from excavated sites and stray find concentration places, also to clear out what kind of methods were used to make hunting and fishing tools in Stone Age settlement complex all around Lielais Ludzas lake in Latvia.

Mostly all tools were polished by stones, sawed on top or at the bottom of tool, part of fishing gear is bored for fishing hook holes and burrs. 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. Paae). Although not all tools were analysed, the dominance of the previously mentioned animals matches with the Latvian paleozoological material. It is obvious that elk was common, as more than 70 percent of all bone and antler tools used in the Early and Middle Mesolithic were made of elk. During the Late Mesolithic and Early Neolithic significantly grew the use of the wild boar (44.5%). Only in the Late Mesolithic that elks were common, as more than 70 percent of all bone and antler tools used in the Early and Middle Mesolithic were made of elks. Tool use-wear was important in Stone Age but only used material depends of climate and accessible animal species.

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. Paae). Although not all tools were analysed, the dominance of the previously mentioned animals matches with the Latvian paleozoological material. It is obvious that elk was common, as more than 70 percent of all bone and antler tools used in the Early and Middle Mesolithic were made of elk. During the Late Mesolithic and Early Neolithic significantly grew the use of the wild boar (44.5%). Only in the Late Mesolithic that elks were common, as more than 70 percent of all bone and antler tools used in the Early and Middle Mesolithic were made of elks.
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 the Roman and Early Roman period, there are differences in technologies, that there was only a limited spread of traditions and knowledge.

In this period, the use of steel for cutting edges in tools and weapons developed in the areas south of the Baltic Sea whereas neither welded steel edges or carbutol studied were found in Denmark. One illustrative example is a number of single edge swords found in the votive deposit at Vismose on Funen. Most of the swords were made from combination of layers of iron and steel. On the basis of analyses of steel inclusions were judged to have their most likely origin in the area of present day Poland, the sword on the other hand was made from low carbon iron, and the slag inclusions indicated that it was produced within present day Denmark. Apparently the form was copied with no knowledge of the technology.

A much more developed network seems to have been present in the Viking age, 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 analyses of slag from iron smelting, will be able to open new perspectives in the identification of the trade of metal in the past.

**TH4-10 Abstract 03**

**Vendel period seaxes from Grobin**

**Author:** Abolins, Artis, Riga, Latvia (Presenting author)

**Keywords:** Baltic Sea region, Metal Working, Vendel period

**Presentation Preference:** Oral

There has been little written about the Scandinavian seaxes found on the Eastern shore of the Baltic Sea, and this paper is an attempt to present an overview of the finds from the Scandianvan colony in Seeburg (modern day Grobin) in Latvia. Since it is the only known site from the Vendel period producing seaxes outside their primary territory, it holds the special interest for researchers, but, so far, no special attention has been devoted to the seaxes finds. There are several fine examples in collection of the National History museum of Latvia, including one especially impressive long seax over 70 cm in length. After careful examination of the blade one can conclude that it was once a very fine example of blade smiths art of the period, consisting of mix of mono-steel and pattern-welded elements. This seax and the technologies involved in the production of it and similar weapons will be the focus of the paper. Examining the other items connected with the burial that contained this seax, it is clear that it would once have belonged to a person of importance in his society, so it not only serves as a testimony of the skill of the maker, but also provides a focus of the paper. Examining the other items connected with the burial that contained this seax, it is clear that it would once have belonged to a person of importance in his society, so it not only serves as a testimony of the skill of the maker, but also provides

**TH4-10 Abstract 04**

**Bronze Age fine metal working in Nordic Europe - gold discs and vessels**

**Author:** Dr. Hub Armbruster, Barbara, Laboratoire d’archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)

**Keywords:** Fine metal working, Nordic Bronze Age, sun discs and vessels

**Presentation Preference:** Oral

Gold work was an important means of cultural and social expression and exchange during the Bronze Age, a period particularly rich in golden prestige items. Along Baltic and Atlantic Europe, ideas and peoples moved exchanging information, goods and technological knowhow. This paper deals with the esthetic appearance and social function as well as symbolic meaning of a particular group of luxury items from Scandianvia and Northern Germany, such as ornamental “sun” discs and containers made in gold. It focuses on their fine metal working technology essential to create their specific shape and decoration. The presentation aims in scrutinising the development and interdependence of form, function and technology of gold work. One topic will be the goldsmith’s workshop, its tool kit and materials used, as well as his social role in Bronze Age society. The presentation also intends to highlight the particular decoration techniques and tools applied to these sheet ornaments and luxury table ware.

**TH4-10 Abstract 05**

**Some aspects of the local weapon production in Western Latvia from 9th to 13th Century**

**Author:** Dr. Tomsons, Artūrs, Latvian National History museum, Riga, Latvia (Presenting author)

**Keywords:** Early Medieval, Eastern Baltic, Weapon production

**Presentation Preference:** Oral

The question of local weapon production in the lands of the western Balts during the end of prehistory and with the beginning or Medieval period and during the Baltic Crusades is closely connected with a problem of formation of the early statehood of the local peoples in the Eastern Baltic. Western Latvian weapons finds, especially more than hundreds of evidence of the double edged swords, pattern welded spearheads are significant source about warrior elites with similar identities across the whole region. These finds also reflect developed craftsmanship and several possible production centers of these weapons in Couronian lands, using both imported material resources, as well as using the skills of local craftsmen working with non-ferrous metals.

**TH4-10 Abstract 06**

**New archaeometallurgical investigations on Bronze Age metal objects from the Eastern Baltic region**

**Author:** Duben, Elke, Cuth-Engelhorn-Zentrum Archäometrie gGmbH, Mannheim, Germany (Presenting author)

**Co-authors:** Čivilytė, Agnė, Lithuanian Institute of History, Vilnius, Lithuania

**Keywords:** Archaeometallurgy, Bronze Age, Metal Objects

**Presentation Preference:** Oral

This archaeometallurgical study presents new research results regarding Bronze Age metal objects from the Eastern Baltic region. Since the last published analyses from Markieviczus in 1973 and Möldtinger in 2010, this new study sheds more light on the metallurgical development in this remote and seldom investigated region when talking of Bronze Age metalurgy.

Since the Eastern Baltic region lacks own copper ore deposits and metal finds are rare, this project aims to answer various questions, e.g., which sorts of metal occur during the Bronze Age in the Eastern Baltic region? Were the Early Bronze Age objects imported or self-produced? From which deposit derive the used copper ores? What can be said about trade, import and/or self-production within that time span?

The investigated objects can be classified to different chronological periods reaching from the Early to the Late Bronze Age. The metal finds derive from different find spots in Lithuania, Raaingrad district (Russia) and Belarus. Most of them are single finds and one newly discovered hoard find from the Late Bronze Age; Kobjebelde.

We present the latest results of the performed analyses. Two analytical methods were applied on approx. 40 samples from metal objects (spearhead, sword). First, the chemical composition was determined by energy-dispersive X-ray fluorescence analysis. Using those results, it was possible to classify different material groups and to make statements regarding the alloying behavior.

Second, stable lead isotope ratios were analyzed for the first time in that region and the results were compared with lead isotope signatures from different copper ore deposits to identify possible regions of origin of the used copper. The geochemical fingerprints of the different deposits were taken into account as well.

**TH4-10 Abstract 07**

**A multidisciplinary approach to the study of Polish silver denarii minted by the early Piasts**

**Author:** Dr. Del Hoyo, Julio M., The National Museum in Krakow, Krakow, Poland (Presenting author)

**Co-authors:** Matosz, Marta, The National Museum in Krakow, Krakow, Poland

**Keywords:** Non-destructive analysis, Polish denarii, X-ray fluorescence spectrometry

**Presentation Preference:** Oral

X-ray fluorescence (XRF) analyses have become a standard method in archaeological science due to their non-invasive and non-destructive nature. Chemical analyses of metal alloys may provide information about the manufacturing process, the provenance of raw materials, and the geographical distribution of ancient mints. A total of 110 silver denarii from the early Piasts (10-11 th centuries AD) belonging to the collections of the National Museum in Krakow and the National Museums Berlin have been studied using micro-X-ray fluorescence spectrometry and the data have been contrasted with archaeological contexts. The research has focused on evaluating the use of this technique as a screening tool for elemental surface characterization of the alloys. All denarii are made of Ag and Cu, with minor amounts of Pb, Fe, Au, Bi, and Zn. Quantitative analyses have revealed silver contents in the 86-97 % range for several of the surveyed coins. Regardless of the problems associated with the use of different
The thesis project “From Crucible and onto Anvil” started in 2015 and focuses on sites housing remains of multiregional craftsmanship dating primarily from 500-1000 AD. Within the project a comprehensive survey of sites will be used to evaluate the presence of multimetal craftsmanship in the landscape based first and foremost on the metalurgical debris documented on or collected from them. Sites in selected target areas will be subject to intra-site analysis of their metallurgical remains focusing on workshop organisation, the array of metalworking techniques utilized and the chronological variance of multiregional craftsmanship.

A primary aim in the project is to elucidate the conceptual aspects of metal craftsmanship. Through this inclusive perspective both the metal craftsmanship and the metalworkers behind it are positioned within the overall socioeconomic framework. The metalworkers, their skills and competences as well as the products of their labour are viewed as dynamic actors in the landscape both the metal craftsmanship and the metalworkers behind it are positioned within the overall socioeconomic framework. The used to analytically frame all the societal and cosmological aspects of metal craftsmanship. Through this inclusive perspective instruments and varieous experimental conditions, the results are in agreement with previous data obtained for similar coins from the same time period and geographical location. The advantages and limitations of the technique when examining numismatic collections are also explained. A known drawback of this method is silver surface enrichment, which is a common process observed in archaeological silver-copper alloys sometimes leading to incorrect interpretation of the data. Preliminary data from complementary techniques like neutron activation analysis (NAA) and proton-induced X-ray emission (PIXE) are very promising in studying for some of these surface effects.

This study has the goal of providing elemental information, which will serve to enhance the current knowledge about geographical and chronological diversification of Polish numismatic collections.

TH4-10 Abstract 08
Smithies and forges in the Northeastern Baltic from the 11th to 16th century AD
Author - Saage, Ragnar, Tartu University, Tartu, Estonia (Presenting author)
Keywords - Baltic metal working, historical metalurgy, smithy sites
Presentation Preference - Oral

Smithy sites are quite rare monuments to be archaeologically excavated. This study encompasses sites from Estonia (Paatsa, Haapasia, Lu, Kuressaare and Käku), Finland (Gubbacka and Tonttimäki) and Russia (Minino I and Gat) to get a better understanding of the smithies discovered so far and how they have the forge construction changed. Also, ethnographic records of 19th century Estonian smithies are used to illustrate the variability of the different smithy set-ups and when (and provided) the conflicting reasoning behind these choices.

In the Northeastern Baltic, the period under investigation can be divided into three stages. Firstly, the Iron Age smithies with pit forges in the 11th and 12th centuries. Secondly, the transitional period in the 13th – mid-14th century, when the urban smiths began to use new forge designs, while some rural smithies continued to operate in the Iron Age traditions. The 13th century marked a period of crusaders in the Eastern Baltic, which was followed by the founding of new towns, which brought forth an influx of craftsmen from the already established towns from the West. Thirdly, the developed crafts guilds period from the mid-14th – 16th century, when the continued movement of apprentices had ensured the spread of urban smithy designs and techniques to the rural areas.

While Russian smithies do not necessarily follow the pattern of Finland and Estonia, they provide a valuable source of well-preserved evidence that will help fill in the gaps in our knowledge from that period.

TH4-10 Abstract 09
Tracing Multiregional Craftsmanship through Metallurgical debris – Open air workshops and multimetality
Author - Svenson, Andreas, Lund University, Lund, Sweden (Presenting author)
Keywords - Metallurgical debris, Multiregional craftsmanship, Multimetallicity
Presentation Preference - Oral

Metallurgical debris is by far the most informative source material for studying the metal craftsmanship of the past. In comparison to other source material, e.g. inorganic archaeology, debris material are more or less confined to the original workshop sites and hence provide direct evidence as to production volume and quality, site organization, artisanal skill and operational sequences within the various crafts.

On many sites throughout the “Metal Ages” evidence of both iron smithing and the use of non-ferrous metals can be found. Traditionally, a clear division between these types of crafts has been enforced in site interpretation, separating sites into ferrous versus non-ferrous workshop sites chronologically or spatially. However, the presence of, for instance, smithing slag cakes with droplets of Cu-alloy within their matrix as well as casting debris of both metals and ceramic materials in forges and smithing hearths challenges this strict division.

The thesis project “From Crucible and onto Anvil” started in 2015 and focuses on sites housing remains of multiregional craftsmanship dating primarily from 500-1000 AD. Within the project a comprehensive survey of sites will be used to evaluate the presence of multimetal craftsmanship in the landscape based first and foremost on the metalurgical debris documented on or collected from them. Sites in selected target areas will be subject to intra-site analysis of their metallurgical remains focusing on workshop organisation, the array of metalworking techniques utilized and the chronological variance of multiregional craftsmanship.

A primary aim in the project is to elucidate the conceptual aspects of metal craftsmanship. Through this inclusive perspective both the metal craftsmanship and the metalworkers behind it are positioned within the overall socioeconomic framework. The metalworkers, their skills and competences as well as the products of their labour are viewed as dynamic actors in the landscape and on the arenas of political economy of the Late Iron Age. This paper aims to present a few examples of the surveyed multiregional sites, discuss workshop reconstruction through metalurgical debris and present preliminary interpretations of the sites internal organisation and placement within the cultural landscape. Many of the sites surveyed so far are interpreted as open air workshops with a relatively long continuity ranging several generations of metalworkers. How is this to be interpreted? Where the multimetal craftsmanship undertaken of temporary character? And if so, why did the metalworkers continue to use the same workshop site for generations?

The concept of multimetality and the possibilities to capture this elusive, yet crucial, element of metal craftsmanship through the study of metalurgical debris will be discussed in the paper. The surveyed sites and the reconstruction of their internal workshop organisation will serves as examples of how multimetality was manifested on the sites and in the landscape.

TH4-10 Abstract 10
On some aspects of specialized production in Roman Iron Age. A case study of S-shaped clasps
Author - Patalen, 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-clasps 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 presumetly based on heterosexual.

TH4-10 Abstract 11
The path of knowledge - Transfer of knowledge of bronze casting in the Late Bronze Age Scandinavia
Author - PhD Cand. Nilsson, Andreas, Lunds Universitet, Lund, Sweden (Presenting author)
Keywords - Bronze Age, Bronze Craft, innovations
Presentation Preference - Oral

The Scandinav bronze craftsmanship has been discussed countless times. But the discussion can continue thanks to new discoveries and new approaches within theses project. I intend in this text 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 issues to these questions by examining the various steps needed in the Chaine operatoire of bronze casting and by discussing different parts of bronze casting technology such as 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 - Nebl, Michael, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords - Baltic metal working, Artefact biography, Runikid dynasty, Viking diaspora, Viking Age Rus
Presentation Preference - Oral

Prehistoric pictures are a special sort of source material. Pictures are not random products – they were created to convey messages. This statement applies especially to the oral culture of the Viking Age. However, Viking Age pictures rarely occur as independent monuments. More often, they appear as animal art on metal artefacts. The starting point for my reflections is a group of grandiose brooches from Viking Age Russia.
Archaeology of the Baltic region

To begin with, a recent ‘object autopsy’ on the famous Gnezdovo hoard revealed that two circular brooches should be regarded as locally made reconstructions of an elder brooch type, once imported from Scandinavia. In fact, no corresponding brooches from mainland Scandinavia display similar amounts of antiquarian sentiment. Why was then so much effort put into restoring the Gnezdovo brooches? One intriguing possibility is that these brooches represented heirlooms from an earlier generation of settlers. Presumably, over time some of these heirlooms transformed into important symbols of Scandinavian ethnicity.

The territory is the private House of Runik. Runikid 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 horse-dress decoration, 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 Runikids, possibly during the second half of the 900s or the early 1000s. Ancient concepts of personhood were such that the actions of an upper class female fell back on her entire clan. Thus, we should perceive the mere act of commissioning that sumptuous brooch as a statement of might and power. Special consideration should also be given to the role of women in the building of alliances, as well as the function of female heirlooms within the social interplay. In fact, the Yelets brooch displays signs of wear and repair that might indicate that it had been passed down to later generations. As Viking Age craftsmen were able to travel considerable distances, there would have been no need for our female patron to seek out the gold smith. Having said that, we should neither exclude the possibility of a precious gift bestowed upon her, either by one individual or by several people.

**TH4-10 Abstract 13**

**Technological aspects of the Swedish gold collars**

**Author**: Dr. hab. Ambrusuter, Barbara, Laboratoire d’archéologie TRACES - UMR 5608, Toulouse, France (Presenting author)
Co-author(s): Pesch, Alexandra, Zentrum für Baltische und Skandinavische Archäologie, Schleswig, Germany

**Keywords**: fine metal working, gold collar, Migration period

**Presentation Preference**: Oral

The Swedish gold collars from the Migration period are enigmatic masterpieces of Early Medieval fine metal working. Their refined imagery, complex form and decoration, and sophisticated manufacturing techniques were studied within the scope of an international research project coordinated by Pesch, Alexandra (Schleswig). This paper deals with the technological aspects of these fineries including the "chaine opératoire" of the production processes and the tools implied. It provides new insights on the collars' technology chosen by the goldsmiths to create the composite body, the figurative elements and the filigree and granulation work. Especially interesting are the technological features of the construction of the tubular sheet work and the making of the so called miniatures. The specialized and complex knowledge of the makers will be set in the context of fine metal working in the North during the Early Medieval period.

**TH4-10 Abstract 14**

**Iron smelting process in the Žarde-Bandužia archaeological complex (Lithuania)**

**Author**: Masiliuene, Ieva, Klaipėda University Institute of Baltic Region History and Archaeology, Klaipėda, Lithuania (Presenting author)
Co-author(s): Selskienė, Aurė, State research institute Center for Physical Sciences and Technology, Vilnius, Lithuania

**Keywords**: chemical analysis, Iron Age, iron smelting

**Presentation Preference**: Oral

The Žarde-Bandužia archaeological complex is situated near the Baltic Sea in the southern part of Klaipeda city (western Lithuania) and includes Žarde (Kunciai) hillfort, Žardonė I–III settlements, Bandužia I–II settlements, Bandužia (Žardonė) settlement, and Bandužia cemetery.

Few seasons were investigated the Bandužia (Žardonė) and Bandužia settlements and discovering archaeological structures: hearths, firepits, ore excavation pits, ore burning furnaces, 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 Bandužia (Žardonė) and Bandužia 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 processes 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 Zobova, Alisa, Institute of archaeology and ethnography SB RAS, Novosibirsk, Russian Federation (Presenting author)
Co-author(s): Daubaras, Marius, Lithuanian Institute of History, Archæology Department, Vilnius, Lithuania

**Keywords**: dental non-metric traits, Lithuania, Mesolithic

**Presentation Preference**: Oral

Domains and Sigipinas archaeological sites are located in the Lake Birzulis region, West Lithuania. Calibrated 14C data for the Mesolithic graves from Donkalnis are around the second part of the VII millennium BC – the middle of the V millennium BC. Sigipinas Mesolithic graves belonged to the period from the second quarter of the VII millennium BC to the middle of the IV millennium BC [Česnys, Butrimas, 2009 table 1]. According to the results of previous investigations, the complex of non-metric traits in the sample from Donkalnis and Sigipinas was connected with so called «Middle European» dental type [Balčiūnienė, Čėnius, Januškauskas, 1992; Balčiūnienė, 1985; Butrimas, 2012]. The main features of this type are the absence of eastern traits such as, for example, shoveling of upper central incisors and distal trigonid crest on lower first molars, and at the same time absolute prevalence of five-cusped lower first molars and high frequency of Carabelli trait on the upper first molars. Middle European complex widely spread in the Middle, East and West Europe. It has a lot of variants inside, some of them are signalyn distinct from each other. So we need a more precise definition of the dental status of these findings and it is one of the aims of our research. The second one is the comparison of the Lithuanian samples with the Mesolithic findings from the other regions of North, East and Middle Europe for determination of the main directions of biological affinities.

The dentitions from six Mesolithic craniums were observed using ASUDAS, Russian dental system, called after A.A. Zubov and the program of the archaic traits accounting. Also the main dental dimensions (mesio-distal diameter, bucco-lingual diameter, crown height and root height) were measured. Obtained data were compared using the Principal Component Analysis (PCA) with the Mesolithic samples from Latvia (Zverev, 1993), Russia (Yurchy Olek Ostrow), Sweden (Skeatalg) and Mesolithic and Neolithic series from Ukraine (Vasilieva, Vovnij-1, Vovnij-2, Nikitko, Yasinovka) because some of the Neolithic burials of this region were synchronous to the Baltic Mesolithic.

The results of our analysis showed the population from Donkalnis and Sigipinas belonged not to the clear middle-european type, as suggested in previous articles, but to the Baltic variant of this type. Difference between these two variants is in the presence of eastern admixture in the latter. This admixture strongly presents in the North, in the Yuzhnyi Oleni Ostrov, Russia (Yurchy Olek Ostrow), Sweden (Skeatalg) and Mesolithic and Neolithic series from Ukraine (Vasilieva, Vovnij-1, Vovnij-2, Nikitko, Yasinovka) because some of the Neolithic burials of this region were synchronous to the Baltic Mesolithic.
TH4-11 Abstract 02
Prevalence of pathological lesions in the Iron Age water burial site Leivlaukja, Western Finland
Author - Salo, Kati, University of Helsinki, Helsinki, Finland (Presenting author)
Co-author(s) - Jakob, Tine, University of Durham, Durham, United Kingdom
Co-author(s) - Mannepera, Kristina, University of Helsinki, Helsinki, Finland
Co-author(s) - Wassman, Anna, University of Helsinki, Helsinki, Finland
Keywords: Finland, Osteochondritis dissecans, Paleopathology
Presentation Preference - Oral

Ante mortem tooth loss (AMTL), dental calculus and especially dental caries prevalence was lower than in later periods in Finland. The prevalence of periapical lesions in the lower molars, however, were slightly higher in Leivlaukja than in later periods. This may be explained by advanced dental wear or trauma. The alveolar-CEJ distance was also lower although teeth in general had more wear. This speaks for diet change (increase in carbohydrates and softer foods) in the later Iron Age, medieval and early post-medieval periods in Finland. For dental caries, however, even the existence of the pathogens causing dental decay in the whole material can be questioned; since lesions are so few and some of them are not typical caries lesions and could be taphonomic or developmental defects of the dental enamel.

Most striking feature in the paleopathological state of the Leivlaukja people is that joint lesions are found more than usual in bioarchaeological studies. Especially the knee and ankle joints are affected more than usual. Most of the joint lesions resemble osteochondritis dissecans, but its prevalence exceeds the normal crude prevalence rate of osteochondritis (0-5%) by far.

Trauma prevalence is similar to other bioarchaeological studies. Also periostitis and localized infections did not reveal anything surprising. Cribra orbitalia, especially in subadult skulls seems to be a slightly lower than the later periods in Finland.

Schmor’s nodes, spondylothesis, enamel hypoplasia, osteoma and localized osteolysis lesions prevalence rates were similar to previous bioarchaeological studies. Partial sacralization of the left side was observed in three individuals.

Formisto, T. 1993: An Osteological Analysis of Human and Animal Bones from Leivlaukja, Vammalian kriipanoin oy, Vammala

TH4-11 Abstract 03
Evidence for venereal syphilis in post-medieval Riga, Latvia
Author - Petersone-Gordina, Elina, Durham University, Department of Archaeology, Durham, United Kingdom (Presenting author)
Co-author(s) - Gerhardt, Gunilla, Institute of Latvian History, University of Latvia, Riga, Latvia
Keywords: congenital syphilis, infectious disease
Presentation Preference - Oral

This research aims to evaluate the presence of venereal syphilis (VS) in two post-medieval cemetery populations from Riga, Latvia. Both skeletal populations were excavated prior to building and reconstruction work. Two hundred and seventy-four individuals from the Riga Dome Church cemetery (RDCC), and 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 inner table of the mandible, 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 a 7 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 parish. None of the VS-positive individuals found 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 cemetery populations complements historical data about the spread of the disease in Riga during the 16th – 17th centuries AD, along with the development of sea trade and the growth of Riga as a significant port city in the Baltic region. It also helps to understand how VS was introduced into the territory of Latvia: the only individuals with possible VS in the archaeological populations of Latvia have so far been found in Riga and Ventspils, which were relatively large port cities in the Baltic Sea trade route during the post-medieval period.

TH4-11 Abstract 04
Cribra orbitalia and trace elements in subadults from a 17th–18th century cemetery in Latvia
Author - Dr. Sholts, Sabrina, Smithsonian Institution, Washington, DC, United States of America (Presenting author)
Co-author(s) - Zarina, Gunilla, Institute of the History of Latvia, Riga, Latvia
Co-author(s) - Tichinin, Alina, Department of Anthropology, California State University, Chico, California, United States of America
Co-author(s) - Rudovica, Vita, Department of Analytical Chemistry, University of Latvia, Riga, Latvia
Co-author(s) - Vlona, Arturs, Department of Analytical Chemistry, University of Latvia, Riga, Latvia
Co-author(s) - Engizer, Austria, Latvian National Museum of History, Riga, Latvia
Co-author(s) - Mužnieks, Virts, Latvian National Museum of History, Riga, Latvia
Co-author(s) - Bartelink, Eric, Department of Anthropology, California State University, Chico, California, United States of America
Co-author(s) - Wärmländer, Sebastian, Division of Biophysics, Stockholm University, Stockholm, Sweden
Keywords: Bioarchaeology, Paleopathology, Trace elements
Presentation Preference - Oral

Cribra orbitalia (CO), or porotic hyperostosis of the orbital roof, is one of the most common pathological conditions found in archaeological skeletal remains of subadult humans. Reaching frequencies higher than 50% in many prehistoric samples, CO has been generally connected to a variety of factors including infectious disease and malnutrition. In this study, we tested the relationship between CO and trace element concentrations in 28 subadult skeletons from a 17th to 18th century cemetery in the historic town of Jēkabpils, Latvia. Bioarchaeological evidence indicated high mortality for children in this cemetery: half of the burials were children under the age of 14, while a third were under the age of four. Life expectancy at birth was estimated to have been only 21.6 years. Seven of the 28 subadults (25%) showed evidence of CO, but only those in age groups of 1-5 and 5-11 years old. Trace element concentrations measured by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) showed no relationship between presence or absence of CO and levels of manganese, zinc, strontium, barium, copper, cadmium, or lead (p<0.05, one-tailed t-test, unequal variances). However, a significant relationship (p<0.05) was found between the presence of CO and increased levels of iron. Further, the relationship between CO and increased levels of iron is a significant effect (p = 0.05).

These results support the hypothesis that CO is related to iron deficiency, and suggests that deficiencies in other trace elements may be involved as well.

TH4-11 Abstract 05
Finns in the light of ancient mitochondrial DNA
Author - M.Sc. Majander, Kartu, University of Tübingen, Tübingen, Germany (Presenting author)
Co-author(s) - Översti, Sanni, University of Helsinki, Helsinki, Finland
Co-author(s) - Wäscher, Anna, University of Helsinki, Helsinki, Finland
Co-author(s) - Översti, Sanni, University of Helsinki, Helsinki, Finland
Co-author(s) - Dr. Sholts, Sabrina, Smithsonian Institution, Washington, DC, United States of America
Co-author(s) - Tichinin, Alina, Department of Anthropology, California State University, Chico, California, United States of America
Co-author(s) - Onkamo, Päivi, University of Helsinki, Helsinki, Finland
Co-author(s) - Chico, California, United States of America
Co-author(s) - Zariņa, Gunita, Institute of the History of Latvia, Riga, Latvia
Co-author(s) - Schuinemann, Verena, University of Tübingen, Tübingen, Germany
Co-author(s) - Krause, Johannes, Max Planck Institute for the Science of Human History, Jena, Germany
Keywords: Ancient DNA, Finnish population history, mitochondrial DNA
Presentation Preference - Oral

The historical migrations and relations of mankind are currently under an intense investigation through novel means in archaeological sciences. Studies illuminating the specifics of our past use wide range of interdisciplinary methods, such as isotopic analysis, genetics and statistics. Ancient DNA (aDNA) has proved a powerful tool in analyzing genetics and statistics. Ancient DNA (aDNA) has proved a powerful tool in analyzing the changes in populations, with an unprecedented precision. Mitochondrial DNA (mtDNA) allows the maternal lines to be followed back in time. Comparing the distributions and divergence of mitochondrial haplogroups helps revealing past migrations and shifts in the genetic structure.
As a modern population, Finns are well known for an abundant record of genetic research. There are, however, no ancient DNA studies focusing on Finnish population history before now.

Recent studies of ancient genomes have revealed two large-scale prehistoric population movements into Europe after the initial settlement by modern humans: A first expansion from the Near East that brought agricultural practices, also known as the Neolithic revolution; and a second migration from the East that was seen in a genetic component related to the Yamnaya pastoralists of the Pontic Steppe, which appears in Central Europe in people of the Late Neolithic Corded Ware and has been present in Europeans since then in a decreasing North-East to South-West gradient. This migration has been proposed to be the source of the majority of haplogroups associated with farmers in Europe, and the effect of this on the more archaic “hunter-gatherer” haplogroups remains to be seen.

From the collections, Renko (13th to 19th century), Porvoo (16th to 18th century) and Hamina (18th century) 3-13 individuals are included in the aDNA study, respectively, as well as 20-35 Iron Age samples from Western Finland. All of the remains have undergone paleopathological and archaeological analyses. We proved the presence and satisfactory preservation of ancient mtDNA in Finnish bone material over the timespan of 1,500 years. Several complete mitochondrial genomes for each of thearchaeological collections studied were retrieved. The mitochondrial genetic evidence is employed in statistical analyses to compare the ancient DNA profiles of Finns with that of the modern Finns. In addition, by including modern nearby populations into analysis, it is possible to examine the past relations and possible patterns of migrations in historical Finland. Preiously published aDNA data from other locations is used to estimate the order and timing of population changes in Finland over time.

In the future we hope to include more ancient samples from Northeastern Europe and other parts of Finland, dating to the Iron Age, to further complete the historical timeline. Genome-wide nuclear DNA analysis is also planned for the samples well preserved.

A genetic perspective on population dynamics of the pre-historic Eastern Baltic region

A genetic perspective on population dynamics of the pre-historic Eastern Baltic region

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 possibly social status. However, with recent developments, modern DNA technology can enable a comprehensive genetic analysis. Today we can get information about ancestry, origin, gluten and/or lactose intolerance, family relationships and sex. It is also possible to predict physical appearance with regards to hair, eye and skin color, length, weight, body odor and BMI.

The introduction of next generation sequencing (NGS) has opened up a whole new field allowing numerous analyses that would not otherwise have been possible. We will use NGS technology and massive parallel sequencing for a detailed genetic analysis of the 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 these challenges in a detailed and genetic analysis. The assay provides the ability to compare ancient DNA profiles of Viking age remains to ancient and contemporary European populations for information about ancestry and the migrations in ancient times. Our data may also provide information about phenotypic traits of these seafarers from early Viking ages.
Kivukalns 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 Kivukalns hill-fort in the lower Daugava river are related to bronze working (Vaaks 2010). According to archaeological excavations the hillfort was built on top of a cemetery, from which burials of more than 220 individuals have been found. Recently, a set of radiocarbon dates on both the hillfort and cemetery provided new information on the relative dating of these and even challenged the old interpretation (Oinonen et al 2013).

In 2014 Finnish Cultural Foundation provided support for a new project to study chronology of the site, and cultural and genetic connections between Kivukalns site and eastern Fennoscandia. In this contribution, we present the status of this project. First, we discuss the cultural connections based on archaeological investigations of the artefacts from Bronze Age cultures of north and south of Gulf of Finland. Second, we present new 14C-based chronologies of the site to shed light on both absolute and relative dating of hillfort and cemetery. Third, we present new data on dietary habits and discuss genetic affiliation of the people based on 13C, 15N isotopic data and ancient DNA measurements on human bones, respectively. Particularly, possible genetic connections between Kivukalns and ancient and present populations of eastern Fennoscandia are discussed.


Mitochondrial DNA Analysis of Human Remains from Estonia – Insights and Challenges

Author: P. Pinge, Saasia, Institute for Archaeological Sciences Tübingen, Tübingen, Germany (Presenting author)

The Neolithic Revolution, describing the transition from a hunter-gatherer subsistence to farming, is one of the most important processes in human history and has been found to be largely a result of demographic diffusion. The arrival of the first farmers in Europe led to an influx of genetic diversity not seen before as well as admixture of local hunter-gatherers and farming people. Changes in the human genetic makeup caused by the Neolithic Revolution were analyzed and described in previous studies including ancient samples from many parts of Europe; however, the genetic makeup of ancient humans from the Eastern Baltic region is still poorly studied.

Here we reconstructed the complete mitochondrial DNA of 20 individuals from different archaeological sites of Estonia covering the timespan from the Late Mesolithic to the Late Neolithic. By determining the haplogroups of the individuals, we show that the typical European hunter-gatherer maternal lineages are represented exclusively in all individuals from all sites until the Middle Neolithic. From the Late Neolithic we see the inclusion of haplogroups that are linked to the Neolithic farming cultures in Central and South Eastern Europe. The results indicate a late arrival of people genetically associated with modern European farmers in Estonia with the Coptic culture.

In addition, we used the generated genetic data to gain insights into the demography represented by the burial complexes by determining the sex of the individuals and any case of maternal kinship. This study encountered the challenge of inhibition of enzymatic reactions, likely due to environmental conditions or treatment of bones. We show how to recognize them and propose possible technical improvements.

TH4-11 Abstract 15

Examining skeletons from the Swedish 17th century flagship Cronan

Author: Dr. Wärmländer, Sebastian, Stockholm University, Stockholm, Sweden (Presenting author)

At the time of its sinking in 1676, the Swedish flagship Cronan 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.

TH4-11 Abstract 17

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: Savulytė, Sandra, Bournemouth, United Kingdom (Presenting author)

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
WESTERN BALTS IN THE IRON AGE

Thursday, 1 September 2016, 09:00-13:00
Faculty of Philology, Room 10
Author - Shirvokhov, Roman, Vilnius University, Vilnius, Lithuania
Co-author(s) - Skvortsov, Konstantin, Kaliningrad State Museum of History and Art, Kaliningrad, Russian Federation
Co-author(s) - Jahn, Christoph, Museum für Vor- und Frühgeschichte Schloss Charlottenburg - Langenhansbau, Berlin, Germany (Presenting author)

Keywords: burial rites, chronology, Prussians
Presentation Preference - Regular session

The session is dedicated to the Western Balts social, economical and cultural development in the described period (from the 1-2nd to the middle of the 13th centuries AD). The problems of the development of artefact types, archaeological sites and contact zones altogether with questions on chronology and innovative methods of dating of the Prussian, Curonian, Scalian and other archaeological cultures of the South-East Baltic region will be discussed at the session.

TH4-12 Abstract 01
The Scandinavian influence upon Western Latvia: the case study of Grobiņa Archaeological Complex
Author - MA Sārta, Jāņese, University of Latvia, Rīga, Latvia (Presenting author)
Keywords: Curonians, Grobiņa, Scandavians
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 identity the role and meaning of Grobiņa, in the late prehistoric Western Latvia and entire Eastern Baltic region, analysing character of the Scandanavian colony and the mutual relations between colonists and Courians. 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-evaluating of the archaeological objects and archival material from excavations between 1928 and 1939 allow for a new perspective on this important site. The reconstruction of the excavation results provides a comprehensive understanding of the chronological situation at Linkuhnen for the first time and show a continuous usage of the cemetery from the Roman Iron Age and the Migration Period to the Viking Age (2.-11. century AD) with almost 500 burials and over 5000 grave goods. The finds from the Migration Period are indicators for long-distance trade and communication between Prussians, Scalianians, Courians and other archaeological cultures in the first millennium. The presentation will offer a closer look at the burial place from Linkuhnen and an overview of the changing cultural relationships to the neighbouring areas during the 1000 years of occupancy of the site. The interpretation of Linkuhnen is closely related to its geographic position close to the Nemunas River and the alteration of the course of the Nemunas at the end of the first millennium.

TH4-12 Abstract 03
Preliminary considerations on the technological variation within Baltic ware pottery
Author - MA Sute, Ailise, National History Museum of Latvia, Rīga, 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 potter’s tradition to the new Baltic ware. There is little to no interlaying period of varying hybrid-forms. It seems that the technology and the skills for using it were acquired almost at the same time. In the West the potters’ wheel is taken up only partly, preserving previous pottery production methods and using them alongside the new methods. The hand-made manufacturing tradition was not forgotten; in fact, hand-made pottery was still produced until the fourteenth century. This paper aims to show a different pattern of relation of the local people to the changing world around them through the acquisition of Baltic ware and the potter’s wheel. The differences of taking up the new technological innovation could not have originated just from differing placement within the trade network. Both regions have equal access to the new technology. However while some take it up rapidly others seem more hesitant. The braking and remaining of thousands of years old pottery production traditions was influenced by longstanding socio-economic paradigms. Further discussion of pottery variation might reveal some important playing factors within these paradigms.

TH4-12 Abstract 04
Belt hooks, fishing lures or clothing fasteners?
So-called belt hooks in the Western Baltic lands
Author - Dr. Wacław, Sławomir, University of Warsaw, Warszawa, Poland (Presenting author)
Presentation Preference - Oral

The South-Eastern coast of the Baltic Sea seems to be a zone of significant concentration of the so-called belt hooks. So far, we haven’t realized the scale of the phenomenon, usually citing just a few of the finds from the Western Baltic lands. In the most complete catalogue of the finds about 20 objects were listed, with nearly half of them found at the burial ground in Kaup near Neuwieden (Mickhow). The author of the paper has gathered information about over 40 ‘fasteners’. Investigated objects are leaf shaped or similar bronze, rarely iron plates with one end provided with a hook, and the other with S-shaped eyepit; both ends are bent to the opposite sides.

The so-called belt hooks were discussed in the past. The problem that attracted special interest was the function that the belt hooks served. Several interpretations were presented, however, most of scholars believed they were belt fasteners (Ge. Gürelthaken). An alternative explanation assumed that they were fishing lures/hooks.

The author of the paper will focus on few issues. First of all, results of analysis of the distribution of ‘belt hooks’ will be presented. Another issue of a significant importance will be the chronology of the investigated objects. A special attention will be paid to the problem of their function. Were they belt hooks, fishing lures or buckles for fastening clothes?

TH4-12 Abstract 05
Products Made with Inlay and Plating Techniques in the Ancient Prussia in the XI - XIV Centuries
Author - Khokhlina, Alexandra, IA RAS, Tver, Russian Federation (Presenting author)
Co-author(s) - Skvortsov, Konstantin, IA RAS, Moscow, Russian Federation
Keywords: Ancient Prussia in the XI - XIV centuries, the techniques of inlay and plating
Presentation Preference - Oral

Different products made using the techniques of inlay and plating iron with base and precious metal were known in Prussian applied art since the end of Viking era. This technology wasn’t applied in material culture of early middle-ages Prussians. It is unknown where was the source for such sophisticated jewelry technologies often applied Russian masters at one a thing from start the XI century. These technologies might be the result of multilateral contacts with Scandinavians and eastern territories and perhaps the territories beyond the Volga. These technologies had two chronological stages in Prussia. The first stage: the XI – XII centuries. Products of this stage have intricate geometrical shapes that indicate some connection with early Scandinavian sample. Time of their appearance in Prussia is similar with such décor spreading in neighbor territories of the Kurshi and the Finns. The inlay was used as for arms (sword pommels from Iraikapinas,Swift;) Dziembin),(plugs of spearheads from Vetrovo (Mal'dante), Prozorye, Javor') in cases, battle- axes from Murnamoks as for riders and horses outfit – stirrups, bit, cover plates for harness belts, buckles. The plating was used for decorating harness (cover plates, pendants) and some filigree made from tin or bronze with silver foil cover.

The most remarkable findings is pole-axe from Murnamoks, spearheads from Kirovskoe, Fedorovo and Kauzer, parts of harness from Gurievsk (Klein Heide) and Vologe (Schulzenhe). Such decor has parallels in more early decorative elements of the Baltic Sea region. The second stage: the XII - the beginning of XIV centuries. It is specified by appearance of numerous products (iron parts
of sword knots and belts, spurs for riding and buckles of spurs, arms like the sword from the Balga castle surroundings and sword hilt from Marienwerder) decorated with geometrical and zoomorphic ornament like image of horned animals ("goats of Perkūnas god") made in unusual for Prussia style with using wire and foil from different metals. Some researchers had suppositions about their eastern origin connected with the movement of the Mongols in Eastern Europe in the XIII century. Such supposition has its reason considering geography of findings (Moravia, Poland, Kaliningrad region (East Prussia), Belgorod region). New findings of this stage goods (belt plates, spurs) are represented in materials from burial ground in Fedorovo, Ruvnina Dolna (Unterplenen, Równina Dolna, Poland), Prudnoe/AI Wehau, Simonischken, Klinovka (Wilkaia, Kunterstrauch), Rybachy (Stangenwald). Such artifacts are also known in Belorussia and Lithuania that can be explained by the migration of the population West-Baltic region caused by crusader expansion. Numerous decor elements connected with Christianity (different images crosses) appeared in this period. This stage is characterized by the reduction of products plated with silver that was in active usage at the first stage. Mass use of these technologies passed away among Prussian jewelers. In this period such goods served as status indicating jewelry of Prussian nobles. This jewelry tradition passed away completely perhaps under the influence of European fashion after absolute conquest of Prussian tribes by the Teutonic Order.

TH4-12 Abstract 06

Western Balts after the Vikings and just before the Crusades.

Finalisation of the post-doc project

Author: Dr. Shiroukhov, Roman, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: Archival data, Chronology, Western balts
Presentation Preference: Oral

During the several last years of preparation of PhD thesis about Prussians and Curonians contacts in the 10/11th-13th centuries and the Post-doc project, dedicated to the Western Balts social, economical and cultural development in the described period, the unique archaeological archives and artefacts database of the 37th scientific institutions from the 8th countries has been collected. Following the tradition of the transregional research of the Western Balts, established by Carl Engel and other East Prussian archaeologists and working in all the major archaeological collections of the Baltic sea region, connected to the Western Balts culture of the late 10th-13th centuries, with a particular consideration on former “Prussia Sammlung”, the picture of development of the whole South-East Baltic region on the basis of archaeological data was elaborated. Considering this, catalogues, maps and analytics for the each general artefact type, burial custom and social (cemeteries based) structure were prepared and partially published. The very first draft of the book reviewed by 2 senior researchers was sent to the Research Council of Lithuania in March 2015. The basis of the draft represents the dissertation, significantly supplemented with data collected during the implementation of a post-doc project in 2013-2015, as well as some new ideas and theories about the development of the South-East region of the Baltic Sea in the 10-13th centuries. The final stage of the preparation of the post-doc project book will be presented at the session.

TH4-12 Abstract 07

A Heraclius solidus - an Avar find from Sambia

Author: Dr. Zapolska, Anna, Institute of Archaeology, Warszawa, Poland (Presenting author)
Keywords: Avars, Heraclius, solidus
Presentation Preference: Oral

In 80’ of 20th century a unique find was made in Sambian Peninsula. During excavations a Heraclius solidus was discovered – the only so far Byzantine coin from this region. Gold coins of Heraclius were minted in big numbers and served as source of tribute payment for Avars. The time of paying these tributes to Khaganat was very short – it lasted only few years – as long as Avars threatened to the Empire’s borders. Even though there are numerous finds of these coins in Lower and Middle Danube, in Carpathian Basin and further to the north up to Middle and Lower Rhine. One such coin was found on Polish lands. The one from Sambia is the farthestmost find and isolated at the same time. The artifacts, which can be linked with Avar influence found within West Balts Culture Circle are rare. Among them there are mostly belt fittings, elements of harness and sporadically parts of jewelry. The coin then arises suspicions and questions on it’s origin, time, ways and circumstances of the inflow.

In my paper I will present new ideas on this matter – contrary to common opinion, that Byzantine coins were brought to the north from the Carpathian Basin through Slaves, there were the rests of Germanic tribes, who should be linked with this mystery and unique find and it’s appearance at the Baltic shire.
Science and multidisciplinarity in archaeology

Advancement in the use and application of scientific techniques and methodologies in archaeology have significantly altered and contributed to our knowledge of the past. Many of the greatest examples of the research reconstructions of the past have been achieved through the integrated application of multidisciplinary methodologies. This theme seeks contributions that examine how the combination of interdisciplinary research methodologies have affected and influenced development in all areas of archaeology. Debates on both the advantages and the limitations of scientific techniques are invited, together with case study examples that illustrate the improvement of quality and reliability in particular analytical methods.

Closely related to long-standing scientific methodologies in archaeology, bioarchaeology is increasingly presenting a new focus on application of a variety of biological research platforms to our understanding of the past. Employing new technologies, new methodologies and new knowledge from biomedicine, chemistry, physics and biomolecular research, these complement our understanding of the past by adding a “biological dimension” to archaeology. In this theme, we call for contributions and discussion on various aspects of our understanding of the past by adding a “biological dimension” to archaeology. 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).

Investigating geochemical and petrographic methods for flint identification in archaeology

During the Stone and Early Bronze Age, flint and chert were the most widely used raw materials for making various types of tools and weapons. Along with dyes (used in burial rituals) and shells, lithic raw materials are among the most important items available to archaeologists to document long distance distribution, exchange networks, and mobility in Stone Age. Given this, precise identification of the outcrops of siliceous rocks-based on their mineral and chemical composition-is of crucial importance in determining the geologic/geographic areas from which artifacts originated. Because flint is notoriously difficult to source using macroscopic means, instrumental methods of analysis, e.g., energy-dispersive x-ray fluorescence (EDXRF), laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) trace element analysis, scanning electron microscope (SEM), electron probe micro analysis (EPMA) and micropaleontological analysis all have been explored to help attribute artefacts to their source of origin and to distinguish among and between individual varieties of siliceous rocks.

This session will be devoted to geochemical and petrographic investigations of flints, including their potentials and limitations. We welcome a wide range of presentations dealing with research on different kinds of siliceous rocks, in any period of time and space, and hope the session will provide new directions for future research into the important problems of flint provenance studies.

The Epipaleolithic site of “Hort de la Boquera”, dated from 12,250±60 BP to 11,850±45 BP and 11,775±45 BP, is located in the north-eastern part of Iberia. The complete stone tool assemblage includes up to 24,000 flint artefacts. This presentation is the first approach to the analysis of the raw materials through an archaeochemical study. First of all, results were obtained by use of mineralogical techniques: macroscopic and microscopic (petrographic) analysis, Scanning Electronic Microscopy (SEM), Micro-Raman and X-Ray Diffraction (XRD), thus combining mineralogical, petrological and micropaleontological methods. Additionally, a geochemical technique was applied: LA-ICP-MS. One of the aims of this presentation is to show the results that were obtained in this study and to demonstrate the advantages and disadvantages of each technique used. Finally we will show the initial results of the project’s geological surveys conducted in the area, which has allowed for the study of several primary outcrops of siliceous raw materials. The analysis of these sources of raw material and their comparison with the stone tools recovered in Hort de la Boquera rockshelter have led to an initial approach to the potential sources of supply of the Epipaleolithic groups that occupied this rockshelter. Together, these results make this study the most comprehensive analysis of the raw materials to have been carried out in the area, and will therefore be a breakthrough in our knowledge of the economy of the prehistoric communities, and thereby helping in the understanding of the reasons for certain human behaviours.
Science and multidisciplinarity in archaeology

TH5-01 Abstract 02
Applying ED-XRF, LA-ICP-MS and PIXE analyses to characterize Pyrenean cherts. Potentials and limits

Author - PostDoc Sánchez de la Torre, Marta, Université Bordeaux Montaigne, Pessac Cedex, France (Presenting author)
Co-author(s) - La Bourdonnée, François-Xavier, Université Bordeaux Montaigne, Pessac Cedex, France

Presentation Preference - Oral

An intense fieldwork focusing on the definition and characterization of chert sources outcropping in the Pyrenees (SW Europe) was recently done. This work was linked to a PhD research concentrated in determining Magdelenian human mobility in the Pyrenees through the analysis of chert tools. This study contemplated a textural-petrographic and micropalaeoontological 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 micropaleoontological characterization of several Pyrenean chert formations, we applied some geo-chemical methods. The aim was to observe the potential these methods could have to characterize chert and, by this way, solving archaeological questions. We would like to present in this communication the potentials and limitations of the application of energy-dispersive X-ray fluorescence (ED-XRF), laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) and particle-induced X-ray emission (PIXE) to chert characterization.


TH5-01 Abstract 03
Sourcing prehistoric chert artefacts from Malta using new non-destructive techniques

Author - Chatzipotamoulou, Petros, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Keywords: Chert, Malta, Sourcing

Presentation Preference - Oral

The purpose of this paper is to present petrological/geochemical techniques (e.g. LA-ICP-MC), which can contribute to the investigation into the origin of chert assemblages found in prehistoric sites in Maltese islands. This research is part of a greater project (FRAGSU2) investigating the extent to which these islands were laboratories of human activity and, in particular, their degree of connectivity with neighbouring areas. The project focuses on the Stone Temples on Malta (between 4th and 3rd millennia BC) and identifies the circumstances under which these unique monuments were built.

Although these stone artefacts have been studied in the past, the research on their sources has been inconclusive. The advantages of these techniques are: their great accuracy, the speed with which results are obtained and, most importantly, they are non-destructive. They are considered perfect for identifying the mineralogical and geochemical context of rock samples. These specific characteristics, combined together, can be great indicators of the origin of these chert assemblages.

Firstly, the main principles, functions, equipment and limitations of these techniques will be demonstrated. Secondly, preliminary results from both chert assemblages and chert outcrops from Maltese islands will be presented. Moreover, this paper will also show how the results should be processed in order to obtain the necessary and useful information in sourcing chert assemblages. Finally, a comparison will be made between these techniques and those used in similar research in western Greece.

TH5-01 Abstract 04
Renewed petrographical and geochemical studies of flint from secondary deposits: Belgian case study

Author - Dr. Moreau, Luc, McDonald Institute for Archaeological Research, University of Cambridge, Cambridge, United Kingdom (Presenting author)
Co-authors - Dr. Faure, Olivier, Paul, Bart Paléolithe, Villard-de-Lans, France

Presentation Preference - Oral

The western region of the English Channel is an archaeologically rich area encompassing the French coastline and the plateaus of the Channel Islands located on the shallow Continental Shelf. Although modern sea level has obscured much of the prehistoric landscape for cooler periods during the last Ice Age the region would have resembled a terrestrial plain with a diverse biotope ranging from boreal forest to tundra conditions, home to both Neanderthals and the large fauna that they hunted. This study is focused within the Middle Palaeolithic of the area; a time period represented well in the western Channel for example at large 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 silicified rock of Crataegous age). On the Continental shelf we know that primary bedrock flint was likely only available from several small chalk outcrops to the north of Jersey, whilst secondary flint sources were present in relic beaches and carried by nearby palaeorivers. These flint pebbles, removed from their original context, are very variable with thick, pitted, cortex and visible inclusions, deriving from multiple parent sites.

This research focuses on artefacts from the La Cotte de St. Brelade assemblage that have likely been procured from a primary bedrock origin. At this stage these artefacts are identified macroscopically by the presence of thin chalky cortex and the fine-grained homogenous nature of the flint matrix. This project investigates the geochemical signature of these flint objects with
the hope to further clarify this theory and provide empirical data to macroscopic generalisation. It therefore employs an artefact centric model first testing multiple assemblages from the site using portable X-ray fluorescence. This process will likely begin to show that the approach can be supported by further targeted minimally destructive testing, such as LA-ICP-MS to achieve a more finite, quantitative perspective for geochemical trends within the sequence. Overall there are some clear and obvious issues with sourcing flint in general (e.g. internal variation, high silica percentage) and particularly within this context where we have no access to the suspected primary deposit. However the potential to realise information about this sustained and varied Neanderthal occupation and share quantity of flint artefacts available to study outweighs preliminary negatives and the future of this project will be to further adapt a methodology aimed to shed light on Neanderthal behaviour through their flint acquisition strategies.

TH5-01 Abstract 07

Erratic Flint from Poland. Preliminary results of petrographic and geochemical analyses

Author - Dr Sobiokwas-Tabaika, Ivona, Centre for Prehistoric and Medieval Studies in Poznań, Institute of Archaeology, Poznań, Poland (Presenting author)
Co-author(s) - Wiera, D.H., Autonomous Unit for Prehistoric Flint Mining in Warsaw, Institute of Archaeology, Warsaw, Poland
Co-author(s) - Hughes, R.E., Geochemical Research Laboratory, Portola Valley, United States of America
Co-author(s) - Sita, R., Faculty of Geology Address University of Warsaw, Warsaw, Warsaw, Poland

Keywords: erratic flint, geochemical analysis, petrologic analysis

Presentation Preference - Oral

Archaeological sites in Poland, and elsewhere in Western Europe, document that flint and chert have a long history of use. The most commonly knapped raw materials throughout the Stone Age and Early Bronze Age, flints from a number of different sources were used for making tools and weapons, fire-lighting tools, etc. When studying prehistoric flint, one of the more interesting issues to be examined is the connection between deposits exploited at the time and the tools recorded at archaeological sites. By following the spread and distribution of particular raw materials we can study the spreading of prehistoric communities, their mobility and mutual contacts, as well as the size and quality of exchange networks.

At the same time, those features which caused siliceous rocks to be highly prized by ancient communities also mean that it is extremely difficult to connect a deposit to concrete artefacts found at an archaeological site. That is why researchers try to describe the diagnostic features of siliceous rocks using various petrographic and geochemical methods.

The area of the Vistula basin is rich in siliceous rocks and it contains deposits of several varieties of flint. A 'chocolate', grey white-spotted and striped (banded) variety, Volhynian flint on its eastern borders and erratic flint occurring mostly in secondary deposits, were all widely used in prehistoric times. Almost all of them have been examined by using both macroscopic and petrographic-geochemical methods to define their diagnostic features.

This paper presents results of preliminary research. The aim of the paper is to present the preliminary results of petrographic and geochemical analyses of erratic flint found throughout present-day Poland. Three different methods have been applied: electron probe micro analysis (EPMA), scanning electron microscope (SEM) and energy-dispersive X-ray fluorescence (EDXRF) spectrometry. The results of the EPMA and SEM analyses of erratic flint have revealed a largely homogeneous mineral composition, which suggests that mineral composition will be of limited utility in distinguishing erratic flint. However, EDXRF analysis of a small sample of erratic flint has identified differences in calcium (Ca) and iron (Fe) content between and among samples of erratic and ‘chocolate’ flint but a much larger sample is required to create a more finite, quantitative perspective for geochemical trends within the sequence. Overall there are some clear and obvious issues with sourcing flint in general (e.g. internal variation, high silica percentage) and particularly within this context where we have no access to the suspected primary deposit. However the potential to realise information about this sustained and varied Neanderthal occupation and shared quantity of flint artefacts available to study outweighs preliminary negatives and the future of this project will be to further adapt a methodology aimed to shed light on Neanderthal behaviour through their flint acquisition strategies.

Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2; UMO-2015/19/N/H3S/03973).

TH5-01 Abstract 09

Flint studies for applications in archaeology – procedures and investigation sequence

Author - Dr Zarina, Liga, University of Latvia, Riga, Latvia (Presenting author)
Co-author(s) - Segnas, Valdis, University of Latvia, Riga, Latvia

Keywords: flint and chert, research procedures, stone tools

Presentation Preference - Oral

During the Palaeolithic flint and chert besides other stone materials were widely used for making tools. Because of numerous finds, flint becomes one of the most important information sources regarding prehistoric society for evaluation of ancient skills, knowledge and innovations. Therefore needs for well-developed typology of tools and updated laboratory methods for raw material identification and characterization can be recognized.

Acknowledgements: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2; UMO-2015/19/N/H3S/03973).

TH5-01 Abstract 08

Lithic raw material from eastern part of Polish Carpathians. Results of preliminary research

Author - Prof. Polesiak, Andrzej, Institute of Archaeology University of Rzeszów, Rzeszów, Poland (Presenting author)
Co-author(s) - Dr. Trapaka, 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 prehistoric: siliceous sandstones, quartzite, siliceous marls, manielle hornstones, fysich radicantes, Bizca-like flints, light-brown tabular hornstone. As suggested from artefacts found on the sites in Poland and Slovakia in various chronological contexts these lithics were exploited both for local and much wider use. Identification of raw material itself as well as the outcrops of siliceous rocks is crucial issue in the study on origins relations between prehistoric communities.

The purpose of our work is to present the primary macroscopic and petrographic characteristics of different variants of siliceous sandstones, quartzite, siliceous marls, hornstones, fysich radicantes and flints from the Eastern Carpathians as well as their natural sources. We point at distinctive features of macroscopically similar or almost identical raw materials that allow to discern stone artefacts and suggest their source area.

ACKNOWLEDGEMENTS: The investigations were funded by the National Science Centre in Poland (PRELUDIUM 2; UMO-2015/19/N/H3S/03973).
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 over 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 (Barcevicius, Taralevicius, 2015, Archaeologia Lithanai, v.16, p.45-62) enables to hypothesize that: a) in certain chronological periods the material for construction of buildings and production of bricks could be extracted from the same or adjacent clay deposits similar in mineral composition; b) there existed brick production technologies specific for that period. So, it is possible to try to create peculiar “multivariate recalibration matrices” with as many as possible dated or characterised by other parameters samples. According to them it would be possible to determine at least approximate date of the newly found interesting brick of unknown chronology or to compare other features.

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, Re, Zr, Zn, etc.).

Aiming to obtain more precise interpretation of brick origin and technological processes using geochemical methods it would be useful: a) to take more (~3) sub-samples from the same brick (avoiding the effect of random sample selection), b) to take samples from the inner part of the brick (reducing anthropogeochronological component), c) to use multivariate analysis method with obligatory determination of total content of main major chemical elements and their specific satellites, d) to compile geochemical database of as many as possible exactly dated bricks (when a, b and c requirements are met), e) to select the set of chemical elements for multivariate analysis basing on various geochemical features (not only variability of composition), f) to verify and supplement the results of cluster analysis with the help of other multivariate statistical methods, g) to accumulate geochemical data on potential raw material (clay) deposits.

---

**TH5-01 Abstract 11**

**Possibilities to interpret of Vilnus old wall bricks using geochemical research method**  
**Author**: Barcevicius, Saulius, Lithuania  
**Co-author(s)**: Lazovskaya, Olga, Institute for the History of Material Culture, St. Petersburg, Russian Federation  
**Keywords**: brick, geochemical, Vilnus  
**Presentation Preference**: Poster

---

**TH5-01 Abstract 12**  
**Micromorphology of flint from Mesolithic-Early Neolithic site Zamostje 2 via thin-section analysis**  
**Author**: Dr. Kulikova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)  
**Co-author(s)**: Lazovskaya, Olga, Institute for the History of Material Culture, St. Petersburg, Russian Federation  
**Keywords**: Mesolithic, Early Neolithic, petrography of flint, raw materials, Zamostje 2 site  
**Presentation Preference**: Poster

---

**TH5-01 Abstract 13**  
**Contribution to the flint characteristic from the Mons Basin (Belgium). New data for mining sites**  
**Author**: PhD student Collin, Jean-Philippe, Univ. Namur / Univ. of Paris 1, Namur, Belgium (Presenting author)  
**Co-author(s)**: Baex, Jean-Marc, University of Mons, Mons, Belgium  
**Keywords**: mining sites, Mons Basin, raw material sourcing  
**Presentation Preference**: Poster

---

*Microscopy and geochronology study of Neolithic flint mining sites in the Mons Basin (Belgium)*  
*Instituut voor de Geschiedenis van de Materialcultuur, Universiteit Gent, Gent, Belgium (Presenting author)*  
*Dr. Kulkova, Marianna, Institute for the History of Material Culture, St. Petersburg, Russian Federation*  
*Co-author(s): Sarcevičius, Saulius, Lietuvos istorijos institutas, Vilnius, Lithuania (Presenting author)*  
*TH5-01 Abstract 13*  
**Contribution to the flint characteristic from the Mons Basin (Belgium). New data for mining sites**  
**Author**: Dr. Sarcevičius, Saulius, Lietuvos istorijos institutas, Vilnius, Lithuania (Presenting author)  
**Co-author(s)**: Taraškevičius, Ričardas, Nature Research Centre, Vilnius, Lithuania  
**Keywords**: flint, mining sites, Mons Basin, raw material sourcing  
**Presentation Preference**: Poster

---

*Possibilities to interpret of Vilnus old wall bricks using geochemical research method*  
*Author*: Barcevicius, Saulius, Lithuania  
*Co-author(s): Lazovskaya, Olga, Institute for the History of Material Culture, St. Petersburg, Russian Federation*  
*Keywords: brick, geochemical, Vilnus*  
*Presentation Preference: Poster*

---

*Micromorphology of flint from Mesolithic-Early Neolithic site Zamostje 2 via thin-section analysis*  
*Author*: Dr. Kulikova, Marianna, Herzen State University, St. Petersburg, Russian Federation (Presenting author)  
*Co-author(s): Lazovskaya, Olga, Institute for the History of Material Culture, St. Petersburg, Russian Federation*  
*Keywords: Mesolithic, Early Neolithic, petrography of flint, raw materials, Zamostje 2 site*  
*Presentation Preference: Poster*
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 - Romania, Baneasa; University of Reading, Reading, United Kingdom (Presenting author)
Co-author(s) - Wouters, Barbara; Universiteit Brussel, Brussels, Belgium
Co-author(s) - Dr. Orton, David; University of York, York, United Kingdom
Co-author(s) - Dr. Reby, Ellen; University College Dublin, Dublin, Ireland
Co-author(s) - McFadden, 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, paleoentomology, 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. Romankiewicz, Tanja; University of Edinburgh, Edinburgh, United Kingdom (Presenting author)
Co-author(s) - Dr. Hunter, Fraser; National Museums Scotland, Edinburgh, United Kingdom
Keywords: Abandonment processes, architectural analysis, Prehistoric building materials
Presentation Preference - Oral

From the Bronze Age to the late Iron Age people in Britain lived in roundhouses. They generally kept them clean which created a well-weathered surface with crushed stones. In later periods it was common that people let their houses be 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.

This paper presents recent work on the Grottes du Labou genoux (France, ca. 3000-2500 BP) 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 building’s life. 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 02

Interpreting silos deposits in medieval Mediterranean France: archaeo-botanical approach

Author - Dr. Ros, Jerome; UMR7209, CNRS/MNHN, Paris, France (Presenting author)
Co-author(s) - Dr. Vauchelle, Christophe; UMR 5554 ISCM (CNRS); UMR7298 LAM3 (CNRS), Montpellier, France
Keywords: archaeobotany, medieval Mediterranean France, silos
Presentation Preference - Oral

For the last twenty years, large-scale public works have helped to improve medieval archeological research in Mediterranean southern France. The multiplication 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 some questions, such as the identification of the type of deposits excavated (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 Catalhöyük West via microstratigraphy and animal bone taphonomy

Author - Dr. Orton, David; University of York, York, United Kingdom
Co-author(s) - Ragashe, Jana; Flinders University of South Australia, Adelaide, Australia (Presenting author)
Keywords: bone taphonomy, formation processes, microstratigraphy
Presentation Preference - Oral

This paper presents recent work on the Catalhöyük West Mound (Turkey, ca. 5900-5800 BC), combining microstratigraphy and animal bone taphonomy to explore the use lives of buildings. Research on architectural stratigraphy and particularly on formation processes of infill deposits has demonstrated that buildings underwent several phases of use, abandonment and modification, and that at various stages of their lives they were used for different activities and purposes that included storage, refuse disposal and burial. While stratigraphy provides a relative sequence of events, animal bone taphonomy provides data on the nature and rate of deposit formation processes, allowing us to begin to approach the duration of each stage in the building’s 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)
Co-author(s) - Grousset, Marie, INRAP, Montigny-le-Bretonneux, France
Co-author(s) - Marczy, T., INRAP, Croix-Moligneaux, France
Keywords: geoarchaeology, huts, Middle Ages
Presentation Preference - Oral

The Medieval period was documented for a long time by texts and iconography. These studies brought numerous testimonies which tended to present the living conditions of the noble persons and the clerics. For more than 30 years, in France, the archaeological research has totally changed this incomplete vision of the period. So, the development of the preventive archaeology, and more particularly on huge excavations called in French ‘Grands Travaux’ lighted numerous data and artefacts of the beginning of the medieval period.

The national institute Inrap which was in charge of many of these projects, operated numerous related disciplines of the archaeology such as geoarchaeology, 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 CSNE). The poster presented here shows the results which were obtained on the same excavation fields of the North of France within the framework of a micromorphological study of the Early Medieval stuff. We especially focused on huts called ‘sunken featured buildings’. It was set up that a particular strategy of sampling, which aims at taking into account the allowed time, as well as the average scientist 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 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 archaeologis during works of preventive archaeology allow to set up real scientific protocols. The BFs, structures in prior without notable interest, give a lot of information on the everyday life of the populations of the beginning of the Middle Ages in the North of France. Thanks to the interdisciplinary studies led everywhere, it is today possible to have a more just vision of the activities of populations we discover in archaeological field.

TH5-02 Abstract 05
Cesspits and the P-P-P-P-problem:

The pitfall of the Pompeii premise and the palimpsest

Author - Dr. Van Oosten, Roos, Leiden University, Amersfoort, Netherlands (Presenting author)
Co-author(s) - Martin Seijo, Maria, CIBIO - Research Center in Biodiversity and Genetic Resources (Univ. of Porto), Porto, Portugal

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 are fossilized and undisturbed by subsequent cultural or natural processes. This ‘archaeological blind spot’ results from the lack of attention given to cesspit cleaning activities in the application of traditional archaeological methods.

For example, counting ceramics both in terms of the ‘minimum number of vessels’ and fragments to tackle formation processes is widely known since Schiffer’s publications, but has not taken root in urban archaeology.

This presentation is a call for a reevaluation of the contextual analysis, meaning that stratigraphy must be the termius framework that links the single specialist reports, which would otherwise end up as discrete paragraphs in the definitive archaeological report. In order to date artefacts and ecofacts correctly, the issue whether cesspits are (in terms of Bailey 2008) true palimpsests (with or without residual refuse), cumulative palimpsests or temporal palimpsests must be discussed.

TH5-02 Abstract 06

Reinterpreting pits and post-holes:

Archaeobotany as a tool to access site formation processes

Author - Dr. Teresa, João, CIBIO - Research Center in Biodiversity and Genetic Resources (Univ. of Porto), Porto, Portugal (Presenting author)
Co-author(s) - Nora Prata, Stella, CIBIO - Research Center in Biodiversity and Genetic Resources (Univ. of Porto), Porto, Portugal

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 must have played a determinant role, thus being mostly suitable for palaeoethnobotanical approaches. On the other hand, dispersed remains are those recovered in sediments dispersed throughout the site. They are supposed to represent the accumulation of remains as the result of different daily activities along an undetermined period of time. As such, they should embody a longer diachrony than the concentrated remains, 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; Fuller and Schiffer 1999).

At Monte das Cabanas more than 3400 charcoal fragments, 397 sherds and 43 carpological remains have been analysed. All these archaeobotanical materials provide taphonomic information to reconstruct cultural and natural processes involved in pit-filling, ultimately allowing the characterization of depositional practices developed by the inhabitants of this settlement (Schiffer et al. 2014).

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.

TH5-02 Abstract 07

Cooking pits, formation processes and democracy

Author - Swedberg, Stig, Kulturlandskapet, Fjällbacka, Sweden (Presenting author)
Co-author(s) - Ödland, Annika, Kulturlandskapet, Fjällbacka, 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.
Transdisciplinary results of site formation processes in the wetland site Zug-Riedmatt (Switzerland)

Author - PHD Ismail-Meyer, Kristin, Integrative Prehistory and Archaeological Science, Basel, Switzerland (Presenting author)
Co-author(s) - Steiner, Bigna, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Holz-Wenger, Annelin, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Gross, Edda, Amt für Denkmalpflege und Archäologie - Kanton Zug, Zug, Switzerland
Co-author(s) - Akreit, Örn, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Antonin, Ferran, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Schielen, Gijs, Amt für Denkmalpflege und Archäologie - Kanton Zug, Zug, Switzerland
Co-author(s) - Jacomet, Stefan, Integrative Prehistory and Archaeological Science, Basel, Switzerland
Co-author(s) - Rientfeld, Philipp, Integrative Prehistory and Archaeological Science, Basel, Switzerland

Keywords: archaeobotany, micromorphology, Neolithic

Presentation Preference - Oral

At Zug-Riedmatt, excellently preserved waterlogged organic layers were conserved in a depth of 6m, below theostaic deposits of the river Lorze into Lake Zug. The layers have been accumulated during the Neolithic settlement activities between 3200 and 3100 cal BC. Even though only a small part of the site was excavated, an exceedingly dense recovery technique was used, ensuring that the site could be investigated in detail in the lab. Using a microarchaeological methodological approach, 78 profile columns were documented, sampled and separated into layers in an intensive cooperation between archaeobotany, palynology, micromorphology, archaeozoology, geochemistry and field archaeology.

All disciplines involved simultaneously analysed the same samples and actively exchanged their results, experiences and ideas. The aim 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 results show that diverse occupational dynamics occurred in the cave with differences between the reworked levels and MIS-5 deposits. Even though Neanderthal activity was identified on site, bird remains do not show a significant hominin input to the assemblage. The aim of the paper is, thus, to understand such contradiction and to discuss further hypotheses regarding the possible agents of bird bone accumulation.

Presentation Preference - Oral

Between 2011 and 2014 the authors investigated in detail the Maddalena upland basin in the southern Apennines (600-1000m a.s.l.), which had previously (2005-2008) been archaeologically surveyed by the University of Groningen Institute of Archaeology. The new and interdisciplinary investigations consisted of geophysical surveys and geo-archaeological and pedological studies. In this paper, we present the results of this work conducted at site RB73, a representative small protohistoric ceramic scatter discovered by field walking survey in the lower part of a cultivated field, near an agricultural terrace. Magnetic gradiometry survey on the whole field did not result in any structural features associated with this surface scatter; a sinusoid set of anomalies - seemingly of geological origin - was recorded running from the upper part of the field to the terrace and beyond. Manual augering across the anomaly and two test pits provided subsurface context to the surface finds and the geophysical data, revealing a surprisingly deep stratigraphy (> 2m) from at least the Early Bronze Age to the Roman period. Startling anthropogenic deposits alternating with more or less sterile layers locally occur not only near the surface ceramic scatter, but throughout the anomaly. Sinuous anomalies now appear to be associated with surfacing anthropogenic deposits, with further pit-like anomalies detected in a second magnetometry survey in a second magnetometry survey suggesting exploitation of a locally shallow water table.

Formations processes and site detection in an Apennine upland valley (Calabria, Italy)

Author - De Neef, Wieke, University of Groningen, Groningen, Netherlands (Presenting author)
Co-author(s) - Van Eeles, Marleen, University of Groningen, Groningen, Netherlands
Co-author(s) - Devre, Jan, University of Groningen, Groningen, Netherlands
Co-author(s) - Ulrich, Burkart, Eastern Atlas Geoarchaeology Prospection GmbH &CoKG, Berlin, Germany
Co-author(s) - Armstrong, Kayt, Tigergro Ltd, Hereford, United Kingdom
Co-author(s) - Den Haan, Michael, Ameia Group, Capelle a/d IJssel, Netherlands

Keywords: Archaeological prospection, Italian prehistory, Site formation processes

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 neo-archaeological case study from South India where an integrated approach involved long-term ethnography, field excavation and geoarchaeological laboratory-based analyses. The integrated approach enabled to associate social and cultural aspects of forager ways of living - such as mobility and immediacy - with patterns of use of apaca and material deposition. Field excavation and sediment sampling from recently abandoned sites of the same group, allowed the investigation of post-depositional processes at both the visible and invisible (micro- and sub-microscopic) scales of the archaeological record. The geoarchaeological analyses included the study of taphonomic and phylohy and soil micromorphology. The results of the geoarchaeological analyses exhibit the environmental post-depositional processes occurring in tropical forests, mainly characterized by acidic conditions and intensive biological activity. Overall, although forager ways of living and the environmental conditions in tropical forests challenge the formation of a well preserved archaeological evidence, an integrated approach examining the different scales of the archaeological record can successfully reconstruct human behavior and the formation processes of archaeological sites.
Unravelling the formation process: re-excavating stratigraphy beneath the temples of Malta

Author - Prof. Malone, Caroline, Queen’s University Belfast, Belfast, United Kingdom (Presenting author)
Co-author(s) - Miss Graham, Rowan, Queen’s University Belfast, Belfast, United Kingdom

Keywords: Antiquarian, Malta, Temples

Presentation Preference: Oral

The great megalithic temples of Malta were first examined in a systematic manner in the early years of the 20th century by antiquarian archaeologists. Thomas Ashley and Eric Peat from the UK joined Thesleff’s Zammitti in Malta in the first properly recorded excavations, and their published records provide an important and valuable evidence of early studies. A century later, as part of the ERIC FRAGUS project, three temple sites have been re-examined, in the quest for new samples for dating and palaeoclimatic evaluation and in doing so have reinterpreted the work of these earlier scholars. This paper reviews how archaeological approaches to megalithic prehistoric sites have changed over a century by drawing some surprising conclusions about the quality and the questions of these pioneers. The current study is employing a range of interdisciplinary approaches to develop and enhance the archaeological record through coordinated methodologies to extract the maximum information from the remnants that remain.

Interdisciplinary research for unravelling the chronology of archaeological sites of Ulów (Poland)

Author - Dr. Moskal-del Hoyos, Magdalena, W. Stafer Institute of Botany, Polish Academy of Sciences, Kraków, Poland (Presenting author)
Co-author(s) - Dr. Nizziabowka-Wilinwska, Barbara, Institute of Archaeology,
Maria Curie-Sklodowska University, Pi. Marii Curie-Sklodowskiej 4, 20-031, Lublin, Poland
Co-author(s) - Prof. Krajcik, Marek, Faculty of Geology, Geophysics and Environmental Protection AGH, Al. Mickiewicza 30, 30-059 Kraków, Poland

Keywords: Anthracology, Radiocarbon dating, SE Poland

Presentation Preference: Oral

A group of archaeological sites located near the village of Ulów in Central Roztocze (Lublin voivodeship, south-eastern Poland) was discovered by people using metal detectors when searching for military items from World War II. The first archaeological survey was carried out in 2001 and proved that an extensive forested area, previously considered as unsettled in prehistory, contained archaeological sites of Ulów. Subsequent work has included various types of archaeological investigations, including anthropological, geomorphological, and archaeobotanical research, among others. In this area, the archaeological site 3 is especially interesting when taphonomic problems are considered. It was the evidence of first farmers in south-western Slovakia

Author - Dr. Toth, Peter, Department of Archaeology, Faculty of Arts, Comenius University in Bratislava, Bratislava, Slovakia (Presenting author)
Co-author(s) - Batora, Jozel, Department of Archaeology, Faculty of Arts, Comenius University in Bratislava, Bratislava, Slovakia
Co-author(s) - Petrik, Jan, Department of Geological Sciences, Faculty of Science, Masaryk University, Brno, Czech Republic
Co-author(s) - Patr, Libor, Department of Botany and Zoology, Faculty of Science, Masaryk University, Brno, Czech Republic

Keywords: environment, Neolithic, pottery technology

Presentation Preference: Oral

The evidence of first farmers 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 B, which flows into Iper. The constant monitoring of the site since 2012 and subsequent archaeological excavation with interdisciplinary approach allowed to sight 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 B and led to the accumulation of calcarious clay during the Early Holocene. The analysis of plant microremains and mollusks dated to the first half of the 6th millennium BC shows that the site was covered with mosaics of forest and vegetation of open habitats.
Exceptional discovery was made in the stratigraphically older layer of calccic 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 type is still known as Tanum Ware. 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 Stånöre mountains. The pottery is tempered with grass stems and leaves. Changes of the organic matter in pottery matrix show a very low firing temperature.

The uniqueness of the site lies in the stratified sedimentary sequence containing the Early Neolithic artifacts in limnic environment, which preserved material that would be otherwise irretrievably lost.

---

**TH5-02 Abstract 17**

**Regional correlations of destruction layers using Earth’s magnetic field: The Levant case study**

**Author:** Hassul, Erez, Hebrew University, Jerusalem, Israel

**Co-author(s):** Agnon, A., Hebrew University, Jerusalem, Israel; (Presenting author)

---

Applying silence and sound to environmental reconstruction; radiocarbon and typology. Cooking installations used continuously before particular calamities in different sites should show temporal fluctuations. The data supports the overall stratigraphic picture and demonstrate the potential of future studies to resolve some of the uncertainties and discrepancies between alternative chronologies.

---

**TH5-02 Abstract 18**

**Applying silence and sound to environmental reconstruction; frameworks, applications, implications**

**Author:** Prof. Lindstrøm, Torill Christine, University of Bergen, Bergen, Norway (Presenting author)

---

In 2015 Blake & Cross (Current Anthropology, 2015) proposed a framework for systematic sound-recordings that is objective, and a major thoroughfare, connecting Western and Eastern Norway across the Hardangervidda arctic tundra plateau, for millennia. In this small pilot-project, we discovered unexpected sounds and interesting sound-qualities that helps us construct a phenomenological understanding of the site 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 archaeoaoustic considerations into the archaeological multidisciplinary record.

---

**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

---

This presentation aims to highlight some of the taphonomic issues which may affect the recovery of charred archaeobotanical material from archaeological deposits. The basis of this presentation is data from 10 archaeological sites in Northern England where the rates of recovery from the washover and the heavy residue have been compared. In this region finds of charred cereal remains may often be sparsely distributed in archaeological contexts, and will not meet the required number of elements recommended to conduct applications such as multivariate analysis. It is argued that due to differences in settlement patterns and geology the recovery of archaeobotanical remains in northern England is in many ways distinct to those in southern England. The presentation will discuss the differential recovery of chaff and grains that have been observed by the presenter, as well as the differential preservation and recovery of hazelnut shell. It highlights some of the methodological problems this creates when classifying sites as being ‘producer’ or ‘consumer’ sites, as well as broader debates such as the nature of wild and domestic plant consumption in prehistory. The presentation highlights the varied types of recovery from within a relatively small geographic area (England), and asks participants to consider how this might affect supranational, or transcontinental interpretations. Concludes by suggesting novel ways in which broad studies might be used for broader site interpretation by trying to identify activity areas via the integration of archaeobotanical data with contextual information from excavation.

---

**TH5-02 Abstract 20**

**Deciphering formation processes of the urban Dark Earth: a geoarchaeological approach**

**Author:** Dr. Nicosia, Cristian, Université Libre de Bruxelles, Bruxelles, Belgium (Presenting author)

---

Urban dark earths are dark coloured, poorly stratified units, often formed over several centuries that have been uncovered in many European towns (Nicosia & Devos, 2014). Due to their lack of any recognizable internal stratigraphy, standard archaeological approaches typically fail to understand their complex histories. The present contribution will demonstrate how geoarchaeological approaches, and especially micromorphology, can help to understand the complex formation processes, and to discriminate different human activities and natural processes involved in dark earth formation. In a second step, we will also discuss how soil micromorphology (the microscopic study of archaeological soil/sediments) can help to understand the taphonomical history of the botanical components, observed within the dark earth; we will hereby focus on the example of the phytoliths (Devois et al., 2013; Vydryghs et al., in press).

---

**References:**


THS-02 Abstract 21

Plant macroremains as proxies to understand formation processes in lakeshore settlements

Author - Dr. Antolin, Ferran, Integrative Prehistory and Archaeological Science, Basel, Switzerland (Presenting author)
Co-author(s) - Schnitzler, Christoph, Integrative Prehistory and Archaeological Science, Basel, Switzerland

Heat treatment is a well-known phenomenon in archaeological contexts. A study of the damage of mud bricks during long-term heating can be used to assess the nature of the fire. The present work focused on the use of FTIR spectroscopy, micromorphology and paleomagnetism to assess the thermal history and the formation of the mud bricks. Results are discussed in the light of the different taphonomical pathways and of the potential for extracting palaeoecological information from the mud bricks. The analysis showed that the mud bricks had been subjected to a wide range of thermal treatments, from moderate to intense. The results suggest that the mud bricks were used in the construction of structures with different functions. The study also showed that the use of mud bricks in construction was influenced by the availability of local materials and by the socio-economic context. The results also highlight the importance of multidisciplinary approaches to the study of the formation processes of archaeological structures.
TH5-02 Abstract 25

EcoPlis: characterizing the prehistoric human occupations in the Lis River Basin (Portugal)

Author: - Evora, Marina, ICArEHB, Setúbal, Portugal (Presenting author)
Co-author(s): - Pereira, Telmo, ICArEHB, Faro, Portugal

The River Lis Basin, located in central Portugal, is an ecotone between the coast and the inland mountains. The unique conditions for highly preservation of both organic and inorganic materials make it a key region to acquire high-resolution data from both geological and archaeological contexts, fundamental for understanding features of hominin behaviour, such as mobility, site use, adaptive strategies and resource exploitation, namely from the highly productive coastal environment. Besides hundreds of open-air sites, this basin also has hundreds of caves and rockshelters, many of them with sediments reaching their roofs and with clear evidence of human occupation. In those already tested it was possible to recognize well-preserved multi-occupational archaeological layers, several types of artefacts made in organic and inorganic materials and also human burials. In 2015, the EcoPlis research project was started with the goal of find and characterize, with the highest-resolution possible, the complete sequence of the Middle and of the Upper Paleolithic occupations in the Western-most Europe. Among other things, the project aims to contribute significantly for the understanding of the period after 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 Acheulean to the Chalcolithic and start the excavation of two cave and a rockshelter. Our approach includes the 3D piece-painting of all viable finds without a cut-line, the complete flotation of the sediments from archaeological layers and samples for phytoliths and parasites. Among other things, we found multiple entrances with human remains in a same short valley and in a same cliff that may correspond to two Early Prehistoric mortuary complexes, a dense shell layer in a same short valley and in a same cliff that may correspond to two Early Prehistoric mortuary complexes, a dense shell layer in a same short valley and in a same cliff that may correspond to two Early Prehistoric mortuary complexes, a dense shell layer in a same short valley and in a same cliff that may correspond to two Early Prehistoric mortuary complexes. Acheulean to the Chalcolithic and start the excavation of two cave and a rockshelter. Our approach includes the 3D piece-painting of all viable finds without a cut-line, the complete flotation of the sediments from archaeological layers and samples for phytoliths and parasites. Among other things, we found multiple entrances with human remains in a same short valley and in a same cliff that may correspond to two Early Prehistoric mortuary complexes, a dense shell layer in a same short valley and in a same cliff that may correspond to two Early Prehistoric mortuary complexes.

Keywords: EcoPlis, Human occupation, Prehistory

Presentation Preference - Poster

TH5-02 Abstract 26

Palynological contribution for formation processes reconstruction in a Neolithic pile dwelling site

Author: - Revelles, Jordi, Universitat Autònoma de Barcelona, Bellaterra (Barcelona), Spain
Co-author(s): - Burjachs, Francesc, ICREA, Barcelona, Spain

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, stubbling of flocks, etc. In addition, the integration of both bioarchaeological proxies and the information from the archaeological excavation allows reconstructing the dynamics of formation of the archaeological record. In this work, a spatial analysis of pollen and NPP taxa has been carried out in order to obtain a better understanding about the formation of the several archaeological structures and sedimentary units of the site of La Draga (Cintra, Spain), a pile dwelling site located in the shore of Lake Banyoles.

Keywords: formation processes, La Draga, Palynology

Presentation Preference - Poster
TH5-03 Abstract 01

Dietary Isotope and Paleopathology Reconstruction of the First Pastoralists from Cis-Baikal, Siberia

Author - Dr. Waters-Rist, Andrea, Leiden University, Leiden, Netherlands (Presenting author)
Co-author(s) - Losey, Robert, Department of Anthropology, University of Alberta, Edmonton, Canada
Co-author(s) - Kharinskii, Artur, Irkutsk State Technical University, Irkutsk, Russian Federation
Co-author(s) - Nomokonova, Tafalina, The University of British Columbia, Vancouver, Canada
Keywords: Diet, Pastoralist, Siberia
Presentation Preference - Oral

Nomadic pastoralists first arrived in the western region of Lake Baikal, Siberia, known as the Cis-Baikal, around 3000 years ago. Compared to early and later periods, the lifeways of these pastoralists, who brought with them domesticated animals including horse, sheep, goats and cattle, is poorly known. This research presents the first stable carbon and nitrogen isotope dietary reconstruction of Cis-Baikal pastoralists (n=55), with most sites and individuals (n=34) deriving from ~2950-2350 calBP, in the Buturkhei mortuary tradition. Stable isotope data are also obtained from five pastoralist period faunal species (n=22; horse, sheep, goat, cow, deer). As well, every pastoralist skeleton is examined for paleopathological evidence of trauma, disease, and morphological alteration.

Isotopic results demonstrate that foragers utilized a mixed subsistence strategy, relying considerably on the Lake’s many freshwater and possibly also on the Baikal freshwater seal. In particular, Cis-Baikal pastoralists have stable nitrogen ratios from ~11.0 to 18.0‰, which is two to three trophic levels higher than the domesticated fauna (mean ~4.0 to 5.0‰), with slightly lower δ13C values in individuals from later periods. Pastoralists from the Buturkhei period have stable carbon values that are 2.0 to 4.0‰ less negative than the domesticated fauna, which can be explained by consumption of freshwater voles. In some later period pastoralists δ13C values become even more negative, which, in conjunction with lower δ15N values, suggests the C4 plant milk may have been consumed either by people or their livestock. Yet, fish remained an important part of the pastoralist diet up to modern times.

Many of the skeletons were very incomplete, limiting paleopathological investigation. Of the more complete skeletons, by far the most common pathological lesions are osteoarthritides of the spine and degenerative disc disease (n=9) and spondylolisthesis of the fifth lumbar vertebra (n=3). One older male had a healed tibia-fibula fracture and two individuals had genu valgum. Of the most lumbar vertebrae, one had a healed fracture and two had genu valgum.

The most commonly reported pathological lesions in archaeological collections are porotic hyperostosis on the cranial vault surface, and cribra orbitalia on the orbital roofs, both macroscopically visible as constrained areas of pitting and porosity, and both being manifestations of diplotos expansion. Hemolytic and megaloblastic anemia are the most likely causes of porotic hyperostosis, while other pathological processes (scurvy, rickets, hemangomas and traumatic injuries) can also lead to orbital roof lesions.

Here we present results of a gross anatomical study of porotic hyperostosis and cribra orbitalia in a sample size of 113 individuals from four archaeological sites spanning the Neolithic – Neolithic transition in the Danube Gorges, Serbia (Vislac, Lepenski Vir, Hajdučka Vodenica and Padina; c. 9500 - 5500 BC). We also discuss the paleodietary implications of our findings in terms of previous isotopic studies of this material. Our results show a high prevalence of porotic hyperostosis (89%) and a low prevalence of cribra orbitalia (13%). No major change in prevalence of these lesions was observed through time. Isotopic study indicate an overall consistency in dietary habits during all three phases at all four sites in the Danube Gorges. As there was no significant improvement in the quality of the diet, nor a change in living conditions, characterised by small, crowded settlements, this is considered supporting evidence that nutritional and sanitation factors are probable causes of porotic hyperostosis and cribra orbitalia in this region. Our findings have useful implications for other studies of chronic disease states and infectious disease spanning the Neolithic transition elsewhere.

TH5-03 Abstract 02

Porotic hyperostosis and cribra orbitalia over the Neolithic transition in the Danube Gorges, Serbia

Author - Dr. Edinborough, Marija, University College London, London, United Kingdom (Presenting author)
Co-author(s) - Beck, Jess, University of Michigan, Ann Arbor, United States of America
Co-author(s) - Boincheva, Hervé, Tübingen Universität, Tübingen, Germany
Co-author(s) - Escudero Carrillo, Javier, Tübingen Universität, Tübingen, Germany
Co-author(s) - Martinez Navarrete, Marla Isabel, CSIC Instituto de Historia, Madrid, Spain
Co-author(s) - Vicent, Joan Manuel, CSIC Instituto de Historia, Madrid, Spain
Co-author(s) - Diaz del Rio, Pedro, CSIC Instituto de Historia, Madrid, Spain
Keywords: bioarchaeology, Copper Age, Iberia, paleopathology, stable isotope analysis
Presentation Preference - Oral

Marroquíes Bajas 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 necropolis (N1, N2 and N4) where primary and secondary burials were documented. In this paper we explore dental paleopathology, dietary differences and mobility patterns throughout bioarchaeological and multi-isotopic methods (n=108). The evaluation of the health status showed no significant differences in the frequency of caries between the three areas of necropolis. However, at N2 there is a higher proportion of hypoplasia and at N4 of caries than the total sample. Stable isotopes of carbon δ13C and nitrogen δ15N in bone collagen showed different sources δ13C values become even more negative, which, in conjunction with lower δ15N values, suggests the C4 plant milk may have been consumed either by people or their livestock. Yet, fish remained an important part of the pastoralist diet up to modern times. Many of the skeletons were very incomplete, limiting paleopathological investigation. Of the more complete skeletons, by far the most common pathological lesions are osteoarthritides of the spine and degenerative disc disease (n=9) and spondylolisthesis of the fifth lumbar vertebra (n=3). One older male had a healed tibia-fibula fracture and two individuals had genu valgum. Of the most lumbar vertebrae, one had a healed fracture and two had genu valgum.

The most commonly reported pathological lesions in archaeological collections are porotic hyperostosis on the cranial vault surface, and cribra orbitalia on the orbital roofs, both macroscopically visible as constrained areas of pitting and porosity, and both being manifestations of diplotos expansion. Hemolytic and megaloblastic anemia are the most likely causes of porotic hyperostosis, while other pathological processes (scurvy, rickets, hemangomas and traumatic injuries) can also lead to orbital roof lesions.

Here we present results of a gross anatomical study of porotic hyperostosis and cribra orbitalia in a sample size of 113 individuals from four archaeological sites spanning the Neolithic – Neolithic transition in the Danube Gorges, Serbia (Vislac, Lepenski Vir, Hajdučka Vodenica and Padina; c. 9500 - 5500 BC). We also discuss the paleodietary implications of our findings in terms of previous isotopic studies of this material. Our results show a high prevalence of porotic hyperostosis (89%) and a low prevalence of cribra orbitalia (13%). No major change in prevalence of these lesions was observed through time. Isotopic study indicate an overall consistency in dietary habits during all three phases at all four sites in the Danube Gorges. As there was no significant improvement in the quality of the diet, nor a change in living conditions, characterised by small, crowded settlements, this is considered supporting evidence that nutritional and sanitation factors are probable causes of porotic hyperostosis and cribra orbitalia in this region. Our findings have useful implications for other studies of chronic disease states and infectious disease spanning the Neolithic transition elsewhere.
**TH5-03 Abstract 04**

**Late Iron Age Switzerland - New isotopic evidence for dietary habits of "Celtic" populations**

**Author:** Moghadam, Negahzad, University of Bern / Institute of Forensic Medicine, Bern, Switzerland (Presenting author)

**Co-author(s):** Müller, Felix, Bernisches Historisches Museum, Bern, Switzerland

**Presentation Preference - Oral**

Investigations of stable isotope ratios from human remains in relation to geographical regions, sex, age, grave goods and chronology allow statements about the living and environmental conditions in ancient times. Stable isotopes do not decay over time and are therefore ideal tracers in biological systems. Swiss skeletal series are of great importance for research on European populations of the Late Iron Age (450 to 15 BC). Written sources are scarce and biological-archaeological analyses provide direct information for individuals. Human remains (N = 164) from burial sites of different regions at the Swiss Plateau and the Swiss Alps were analysed. Collagen was extracted and stable carbon, nitrogen and sulphur isotopes were analysed. Additionally, published data from Münsingen (Moghadam et al. 2018) were included for comparisons.

All data were analysed for sex, age, regional and chronological differences within and between the burial sites. Stable isotope data indicate an overall diet mainly based on animal protein and plants sources following the C3 photosynthetic pathway. Significant differences between the Swiss Plateau and the Swiss Alps were found with more positive δ13C and δ15N mean values observed for the Swiss Alps. Some individuals indicate a significant intake of C4-plants in the diet. Cultural and/or climatic changes as well as different geological conditions might have led to distinct patterns of crop cultivation and animal husbandry. No significant differences could be detected between males and females as shown for Münsingen. Regarding the age classes the δ15N values follow an isotopic trend indicating a breastfeeding signal for infants. The δ4S data suggest a more terrestrial based diet with minor consumption of freshwater fish. Differences in the δ4S data might reflect different local δ4S values with minor mobility in Late Iron Age populations.


---

**TH5-03 Abstract 05**

**Dietary and social patterns in early medieval southwest Germany – a stable isotope approach**

**Author:** Marker, Anne, University of Tuebingen, Tuebingen, Germany (Presenting author)

**Co-author(s):** Bocherens, Hervé, Department of Geosciences, University of Tuebingen, Tuebingen, Germany

**Presentation Preference - Oral**

This presentation explores the ecological dynamics of food resources and the establishment of dietary differences in the early medieval Alamannia. Differential dietary patterns develop through various socio-cultural, economic and environmental factors and may be expressed in an unequal distribution of food resources or food preferences within a society or differential subsistence strategies between populations. The Alamannic row graves in southwest Germany present a substantial source to study these factors for a period of the 5th - 8th century AD with an allegedly ranked but somewhat fluid social system. The analysis of stable carbon and nitrogen isotopes in bone collagen of adult human and faunal remains of four row grave cemeteries (Fridingen a. d. Donau (N = 65), Kirchheim u. Teck (N = 62), Neresheim (N = 54)) and the separate necropolis of Bad Wimpfen (N = 15) is conducted in order to investigate the interaction of resources such as diet, socio-cultural and gender identities in the framework of the respective natural conditions. The comparison of dietary proxies, archaeological and environmental data reveals a pattern of divergent internal dietary structures between settlement sites, reflecting different strategies in more or less favorable locations in the Frankish Empire as well as chronological changes. Higher amounts of animal protein in the diet of individuals buried in exceptional places (e. g. burial mounds) in Fridingen a. d. Donau and Niederstotzingen indicate socio-cultural dynamics, where special treatment in death is connected to dietary restriction during lifetime.
Science and multidisciplinarity in archaeology

This strontium analysis method was applied on a large skeletal collection (MIN 260) discovered from the In Hämni cemetery. The site which was used during the 15th to 16th century AD and has been previously studied with stable isotopes analysis for diet, this investigation showed that strontium ratios were analyzed from teeth of ten people. Moreover, local plant materials were collected for a baseline study on this remote area. Preliminary results suggest that strontium isotope analysis should be interpreted with caution when the population has a large input of aquatic food in their diet.

Diet, morbidity and mortality of a north Finnish town 1600-1800 AD

Kemi (65ºN 25ºE) has been a small but relatively important town in southern Finnish Lapland since the 16th century. The diet and mortality of its inhabitants has been studied on the basis of death records that contain the statistics of nearly 1000 individuals that died in Kemi between 1690 and 1850. These data include the individual’s name and profession, the death date, the date and age at death, and the cause of death. In addition, the naturally mummified remains of some individuals buried under the churches of Kemi and Haukipudas (65 km SE) from the early 17th to the mid-18th century were investigated by means of Computerized Tomography (CT) scanning and stable isotopes analyses in order to obtain information about possible pathological features and the diet. Zoosarchaeological and ethnohistorical data have been used together with isotopic results in the interpretation of the local diet. This paper presents and discusses the preliminary results of this research.

Dietary variability among earliest domesticated pigs in the Iberian Peninsula

In the Iberian Peninsula, 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, reaching back to the Mesolithic. Our findings show that the “protective” allele was already fixed in Medieval Europe but seems to have been lost in the modern pig populations, and that the diversity was expressed by the presence of both alleles, with no significant differences between different populations across the globe. This suggests that leprosy was transmitted through different populations and that the European populations could have had a higher prevalence of the disease than previously thought.

Leprosy of the past: The genetics behind pathogen-host interactions, as revealed by ancient-DNA

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 marker. 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 phylodynamic seems to exist, allowing researchers to discuss several scenarios about how leprosy spread across the world. In contrast to the limited genetic variability of the pathogen, however, the clinical symptoms of the disease vary to such a degree that this has led to the notion that it is the host’s immune system that plays the major role in the development of the pathogenesis in leprosy patients. 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 aDNA data from two cemeteries from Medieval Sweden (where leprosy had been previously documented) and compared the results with published genomes from earlier populations, reaching back to the Mesolithic. Our findings show that the “protective” allele was already fixed in Medieval Europe but seems to have been lost in the modern pig populations, and that the diversity was expressed by the presence of both alleles, with no significant differences between different populations across the globe.
Famine to find God? Isotopic approaches to Nun’s diet and main paleopathological features (including one possible case of brucellosis, another two chronic infections and two cases of tuberculosis). This intriguing hypothesis demands more research to unveil the intimate life of the female inhabitants of the cloisters in their way to find God.

The faunal sample presents a great isotopic variability. This is particularly the case for 15N of sheep. Although all these animals were adults between 18 and 24 months at death, they show a 3σ range (9.6-6.6‰). This may be reflecting the wide variation of ecosystems surrounding the site including some areas with saline geological materials (e.g. continental salt mines). No correlation has been found between the size of the sheep and their isotopic signal. Gallus also show a quite large variation on 13C, while pig values are more homogeneous. Terrestrial animals 13C ranges from -18.7% to -21.0% including herbivores, which suggests a low intake of C4 plants in some of them. In contrast to humans, 153C values are within a limited range (-17.6% -18.6%). But 15N shows a continuous shift between 9.7 and 12.7‰. The latter is an unexpected result considering that a religious community should consume basically the same kind and amount of food. There is no relationship between nun’s isotopic variation and their age at death, period of burial and main paleopathological features (including one possible case of brucellosis, another two chronic infections and two cases of osteopetrosis). A reliable explanation for the results could be the austerity and fasting habits that were common in Dominican nun communities, particularly between the 16th and 18th centuries. It is known that severe famine can produce enrichment in 15N due to autolysis of proteins. The paleopathological study also supports the assumption of a very austere life, e.g. muscular/skeletal stress markers and osteoarthritis have a high presence in the sample. This intriguing hypothesis demands more research to unveil the intimate life of the female inhabitants of the cloisters in their way to find God.

The faunal sample presents a great isotopic variability. This is particularly the case for 15N of sheep. Although all these animals were adults between 18 and 24 months at death, they show a 3σ range (9.6-6.6‰). This may be reflecting the wide variation of ecosystems surrounding the site including some areas with saline geological materials (e.g. continental salt mines). No correlation has been found between the size of the sheep and their isotopic signal. Gallus also show a quite large variation on 13C, while pig values are more homogeneous. Terrestrial animals 13C ranges from -18.7% to -21.0% including herbivores, which suggests a low intake of C4 plants in some of them. In contrast to humans, 153C values are within a limited range (-17.6% -18.6%). But 15N shows a continuous shift between 9.7 and 12.7‰. The latter is an unexpected result considering that a religious community should consume basically the same kind and amount of food. There is no relationship between nun’s isotopic variation and their age at death, period of burial and main paleopathological features (including one possible case of brucellosis, another two chronic infections and two cases of osteopetrosis). A reliable explanation for the results could be the austerity and fasting habits that were common in Dominican nun communities, particularly between the 16th and 18th centuries. It is known that severe famine can produce enrichment in 15N due to autolysis of proteins. The paleopathological study also supports the assumption of a very austere life, e.g. muscular/skeletal stress markers and osteoarthritis have a high presence in the sample. This intriguing hypothesis demands more research to unveil the intimate life of the female inhabitants of the cloisters in their way to find God.
Since 2012, excavations at the site of Montiel (Spain) had led to the discovery of two cemeteries, representing two socially and culturally different traditions: one Muslim (10th-13th century AD) and one Christian (13th-15th century AD). The geochemical composition of these osteological remains (10 Muslim individuals and 21 Christians) was investigated to see how different cultural practices and beliefs, such as religion and social status, might have influenced the diet of these populations which were buried in a similar environment. This study aims to compare the results obtained with historical sources.

The nature and location of dietary components determine their specific geochemical composition which passes on through the food chain and is archived in consumer's bones. The Muslim and Christian skeletal remains can therefore be used as witnesses of individual's dietary habits and preferences, at least for the last years to decades before their death, as a result of the interconnection of the various production stages of the bone collagen that enters the diet (16). The chemical analysis of both bone collagen and carbonate can therefore provide a basis for the reconstruction of the diet of these populations and to study the role played by different sources of water and diet on the origin of the burial ground.

This study also investigates the geochemical composition of contemporary human remains (ca. 10 individuals from each period studied) from neighboring settlements, with a view to establish a environmental geochemical baseline for each analytical proxy applied, and to enable the discussion of the Muslim and the Christian economy in Montiel.

Since 2012, excavations at the site of Silbojokk (Sweden) had led to the discovery of two cemeteries, representing two socially and culturally different traditions: one Muslim (10th-13th century AD) and one Jewish (13th-15th century AD). The geochemical composition of these osteological remains (10 Muslim individuals and 21 Christians) was investigated to see how different cultural practices and beliefs, such as religion and social status, might have influenced the diet of these populations which were buried in a similar environment. This study aims to compare the results obtained with historical sources.

The nature and location of dietary components determine their specific geochemical composition which passes on through the food chain and is archived in consumer's bones. The Muslim and Christian skeletal remains can therefore be used as witnesses of individual's dietary habits and preferences, at least for the last years to decades before their death, as a result of the interconnection of the various production stages of the bone collagen that enters the diet (16). The chemical analysis of both bone collagen and carbonate can therefore provide a basis for the reconstruction of the diet of these populations and to study the role played by different sources of water and diet on the origin of the burial ground.

This study also investigates the geochemical composition of contemporary human remains (ca. 10 individuals from each period studied) from neighboring settlements, with a view to establish a environmental geochemical baseline for each analytical proxy applied, and to enable the discussion of the Muslim and the Christian economy in Montiel.
Initially the genetic profiles obtained from the remains of the graves 10A - "The Warrior" and 10B - bone fragment derived from a child pointing a parent-child relationship. However the genetic profiles obtained were incomplete so it was very difficult to define the relationship type. In later stages of the project it has again carried out a genetic analysis of the remains of the graves 10A and 10B, with another bone fragment (10A grave). The results of this new analysis provided a more complete genetic profile and confirmed the earlier presumption of parent-child relationship. In the analysis of mitochondrial DNA (mtDNA), the same haplogroup (hg) 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 haplogroups (hg) of mtDNA in these relationships are H1b and H2a respectively. In addition, mtDNA haplotypes have been obtained in the analysis of the graves 2, 68 and 12. Preliminary results indicate that individuals belonged to haplogroup H1a and H6 respectively. Recent genetic studies of the remains of the burials 13 and 15 have been inconclusive about the sex of the individuals analysed. While mtDNA haplotypes obtained indicate that they belonged to haplogroup JT.

The presented studies have proven that interdisciplinary analysis from a wide range of archaeology-related and anthropological-medical fields can assist studies and broaden the knowledge of archaeologists and anthropologists to enhance the understanding of the Strzyzow Culture.

---

**TH5-03 Abstract 19**

Cooking for the deceased: ceramic with lipids from the megalithic necropolis of Panoria (Spain)

**Author** - Dr. Molina Muñoz, Elena, Autonomous University of Barcelona, Bellaterra, Spain (Presenting author)

**Co-author(s)** - Aranda Jiménez, Gonzalo, University of Granada, Granada, Spain

**Co-author(s)** - Synchez Romero, Margarita, University of Granada, Granada, Spain

**Keywords:** dolmen, grave goods, organic residues

**Presentation Preference:** Poster

The megalithic necropolis of Panoria was discovered in 2012 and supposes the latest addition to the finds of megalithic cemeteries in Europe. Intensive surveys across the Quadi baga Mountain range in the Guadix basin (Granada) that makes up one of the most important megalithic concentrations in Europe. Currently, the team at Panoria have found 19 dolmens. Most of them consist of small tombs with polygonal, rectangular or trapezoidal chambers and short corridors. With one possible exception, neither the capstones nor the expected mounds have been documented. Five of these megalithic tombs were excavated between February and June 2015. Two pottery vessels, found as grave goods in Burial 10, have been analysed to extract organic residues preserved in their body because of the absorption through its pores. We have investigated the molecular and isotopic composition of organic residues by gas chromatography and mass spectrometry. Vegetal remains, mainly represented by plant oils, were the main organic residues found. For the first time for the megalithic societies of Iberia, these results shed new light on their funerary rituals as well as their food habits.

---

**TH5-03 Abstract 20**

Bioarchaeology – Behind the Scenes of Multi-Proxy Analyses

**Author** - Dr. Christophe, Snoeck, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)

**Co-author(s)** - de Winter, Niels, Vrije Universiteit Brussel, Brussels, Belgium

**Co-author(s)** - Schulting, Rick, University of Oxford, Oxford, United Kingdom

**Co-author(s)** - Claeyse, Philippe, Vrije Universiteit Brussel, Brussels, Belgium

**Keywords:** biomarker, stable isotopes, XRF

**Presentation Preference:** Poster

In archaeology, the study of bone and teeth is key to the understanding of the past as they represent direct evidence of life on Earth. The mineral present in bone and teeth (bioapatite – a highly substituted hexagonal calcium phosphate apatite) contains several elements that can be used to reconstruct palaeoenvironments, palaeoecologies, mobility patterns, etc. However, when looking at bioapatite of bone and teeth, diagnosis remains a problem that is often overlooked. Recent developments in high resolution infrared and X-ray analyses allow for a better assessment of the preservation of archaeological skeletal remains. Once optimal samples are selected, it is possible to go into the isotopic study of archaeological bone and teeth. In this poster we present the structural and chemical compositions of hundreds of bone and teeth with ages ranging from the Mesolithic to the present day using XRF, FTIR microscopy and (CP-M)S. Several alteration patterns can be observed such as fossilization, burning, leaching of elements within the sample, etc. It is also possible to evaluate the presence/absence of organic matter in these samples. A selection of optimal samples are then analysed isotopically (813Ccap, 818O, 818Ocap, 87S/Si) and the results discussed in terms of diet, climate and mobility.

---

**TH5-04 Abstract 04**

Unravelling Cremated Bone – Structural, Elemental and Isotopic Studies

**Author** - Dr. Christophe, Snoeck, Vrije Universiteit Brussel, Brussels, Belgium (Presenting author)

**Co-author(s)** - de Winter, Niels, Vrije Universiteit Brussel, Brussels, Belgium

**Co-author(s)** - Schulting, Rick, University of Oxford, Oxford, United Kingdom

**Co-author(s)** - Lee-Thorp, Julia, University of Oxford, Oxford, United Kingdom

**Co-author(s)** - Claeyse, Philippe, Vrije Universiteit Brussel, Brussels, Belgium

**Keywords:** Cremated Bone, Infrared, Isotopes

**Presentation Preference:** Oral

Cremated bone occurs in many archaeological sites as small grey and white fragments. The high temperatures reached during heating induce structural, elemental and isotopic changes to bone apatite (the inorganic fraction of bone). These changes are investigated here by infrared spectroscopy and mass spectrometry (813Ccap, 818Ocap, 818O and 87S/Si) in both modern heated bone and archaeological cremated specimens. Nevertheless, traditions of cremating the dead have been common across Europe and therefore a large amount of knowledge about past societies lies in the understanding of cremated remains. The last three decades have seen a dramatic increase in the attention paid both to individual deposits of cremated remains and to this class of material as a whole. Standardised methodologies for demographic analysis are now well established, and the development of radiocarbon methodologies applicable to cremated bone increased the perceived interpretative value of this material among a wider audience. The study of cremated remains is now in a phase of maturation, with new methodologies, often aided by technological advances, allowing sophisticated analysis and interpretation.

This session aims to bring together researchers from across Europe working with cremated remains, to present new developments in their analysis and interpretation, and new findings resulting from these developments. We aim to foster international discussion, communication and collaboration to share methods, results, expertise, and expand the common knowledge about this branch of bioarchaeology.
TH5-04 Abstract 03

"Cremated Dating"? Case studies for the dating of Bronze Age cremation burials from Hungary

Author - PhD Dani, J., Dei Migeum, Debrecen, Hungary (Presenting author)
Co-author(s) - PhD Kiss, L., Institute of Archaeology Research Centre for the Humanities of HAS, Budapest, Hungary
Co-author(s) - PhD Kucsko, G., Institute of Archaeology Research Centre for the Humanities of HAS, Budapest, Hungary
Co-author(s) - Major, I., Horszfeldi Laboratory of Environmental Studies, Institute for Nuclear Research, Debrecen, Hungary
Co-author(s) - Patay, R., Ferenczy Museum, Székesfehérvár, Hungary
Co-author(s) - PhD Szabó, G., Weiszényi Mór Museum, Székesfehérvár, Hungary
Co-author(s) - PhD Vizi, G., Institute for Archaeological Sciences, Eötvös Loránd University, Budapest, Hungary

Keywords: AMS dating, Cremated remains, Early & Middle Bronze Age in Hungary

Presentation Preference - Oral

Cremation of dead bodies was a very common practice in the Carpathian Basin during the early, middle and late phases of the Bronze Age. The scientific value of cremated remains were undervalued due to the small amount of calcinated bones and the microfragmentation of human bones that provide only limited bioanthropological information. Beside the restricted information archaeologists have to face with methodological problems. One of these problem is that sometimes it is not easy to collect the tiny cremated bone pieces within a cremation burial. Another, "burning question" is the dating of the cremated bone remains.

Contrary to the nearly 70 year old development of the traditional 14C dating, the methodology applicable to cremated bone is now in a phase of maturation. The aim of our presentation is to provide case studies of several Early and Middle Bronze Age (2600/2500–1600/1500 BC) cremation burials from eastern, central and western Hungary. This is important because sometimes because there is a poor fit between the relative chronological scheme and the still building radiocarbon chronology of the region, mainly because of the dominant burial practice of cremation. The presented, selected assemblages are special because they contain not just calcinated bones, but unburnt animal bones as gravegoods. The dating of these assemblages, and dating of burnt 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 samples, two, basically different directions have formed. Besides the differential chemical 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 performed and 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.

TH5-04 Abstract 04

The Role of MDCT in the Stratigraphic Study of Ancient Cineraria

Author - Innocenti, Dario, Moncalvole, Italy (Presenting author)

Keywords: Cinerary, Stratigraphy, Urns

Presentation Preference - Oral

Cinerary urns are a real challenge in the study of ancient populations. Content and container are indeed the result of a series of social customs and funerary gestures that begin after the death of the 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 especially connected with the quantity and quality of information that can be obtained. The stratigraphic analysis of the urn content potentially documents the depositional process from its filling to its deposition in the definitive grave, including any changes related to the interaction with the surrounding environment, tampering, and so on.

Manual laboratory micro-excision permits an ordinate empty of the urn through an arbitrary division of its content in horizontal sections, from top to bottom, joined to an accurate graphic and photographic documentation. One of the limits of this method is the difficulty to fully understand the spatial relationships between the layers and materials contained in the urn and their alterations.

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-excavation from stratigraphic point of view, suggesting its utilization before any non-repeatable operation made on the urn.

Our experience after MDCT scan on 40 cineraria from Neolithic to Roman age will be presented.

TH5-04 Abstract 05

Cremated bones from Early Iron Age tarand graves in Estonia

Author - MSc MA Kivirüüt, Anu, University of Tartu, Tartu, Estonia (Presenting author)

Keywords: cremation, Early Iron Age, methodology

Presentation Preference - Oral

This presentation will focus on the methodology and results of Estonian Early Iron Age (900 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, ddNA analysis, statistical and location analyses, 3D photogrammetry.

I will give an overview of the used methods and how they have benefitted my research. I will also focus on the results and present possible interpretations of the findings thus far.
TH5-04 Abstract 07
Up in Flames: Animals, People, Identity and Cosmology in Anglo-Saxon East Anglia, UK
Author - Rainsford, Clare, University of Bradford, York, United Kingdom (Presenting author)
Presentation Preference - Oral

Human and animal co-burials are a critical resource in zooarchaeology, presenting instances where a personal connection can be demonstrated between people and animals. Animal remains have been recognised in 5th to 7th century cremations in eastern England from an early date, and systematic analyses in the 80s and 90s of high-profile sites such as Spong Hill, Norfolk, have served to demonstrate the frequency, diversity and value of these inclusions. Yet the information from cremated animal remains is persistently under-exploited, due to difficulties on the one hand of accurate identification, and on the other of paltry retention of material from antiquarian and later excavations.

As analysis of animal remains in cremation burials becomes more common (although still far from universal), the increasing quality and quantity of the available data makes possible new and more detailed analyses of these complex, multi-faceted pyre goods. This paper will review new and existing evidence from early Anglo-Saxon cemeteries in East Anglia to explore how animals were used in funerary rites. Animals were a fundamental and ubiquitous part of early medieval society, providing a context for human action and perception and acting dynamically within that context. Their role in cremation rites is considered to be not simply symbolic, but as a complex interaction between identity, agency and cosmology.

TH5-04 Abstract 08
Cremation in the Scottish Chalcolithic
Author - 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 seeing all of the evidence of cremation in burials?

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 rites actually were involved.

The results in radiocarbon dating of cremated remains has led to a wealth of new evidence that can shed light on Beaker period burial practices and the nature of indigenous-Beaker Interactions.

This poster presents a new project aiming to characterise the burial practices of Beaker Period Britain, with a discussion of the initial results for evidence of mortuary diversity in Scotland.

TH5-04 Abstract 09
Advances in 14C dating of cremated bones at HEKAL Laboratory, Debrecen, Hungary
Author - Major, István, MTA ATOMKI, Debrecen, Hungary (Presenting author)
Co-author(s) - Dani, József, Déci Museum, Debrecen, Hungary
Co-author(s) - Kiss, Viktória, Institute of Archaeology Research Centre for the Humanities, Budapest, Hungary
Co-author(s) - Kutics, Gabriella, Institute of Archaeology Research Centre for the Humanities, Budapest, Hungary
Co-author(s) - Patay, Róbert, Ferenczy Museum, Szentendre, Hungary
Co-author(s) - Szabó, Gáza, Wissinsky Mór Museum, Székeskőr, Hungary
Co-author(s) - Vizi, Gábor, Institute for Archaeological Sciences, Eötvös Loránd University, Budapest, Hungary
Co-author(s) - Tóth, Marianna, MTA ATOMKI, Debrecen, Hungary
Co-author(s) - Pulfi, István, MTA ATOMKI, Debrecen, Hungary
Keywords: radiocarbon, dating, cremated bone, Bronze Age
Presentation Preference - Poster

A compilation of 14C dates over the last 50 years shows that less than 6% of all the bone dates were performed on purified 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 (2600-1800-1550 BC) were used where the expected age of the samples were detectable by dating well preserved, un-burnt bone findings from the same grave. At first, the intact bones were dated using the collagen fraction. In case of bioapatite samples, after the repetitive rinse with sodium hypochlorite and acetic acid step, the crushed and sieved samples were reacted with phosphoric acid. The revealed CO2 gas was subsequently purified from other gases, graphitized by sealed tube method and its 14C content was finally measured by the MICADAS AMS. Based on our first results fractions with different particle size (0.2-0.3 and 0.5-1 mm) yielded identical carbonate content and 14C age results. However, combing the age of the three parallel bioapatite samples did usually not to be the same, that of organic fraction a difference of 200-400 years was experienced presumably due to the chemical pre-treatment.

On this poster we would like to present both the evolution of our carbonate pre-treatment protocol and dating problems arisen in the case studies of the presentation entitled „Cremated Dating”? Case studies for the dating of Bronze Age cremation burials from Hungary.

TH5-04 Abstract 10
Excavator bias and laboratory techniques of cremation burials
Author - Mgr. Pióchoń, Erika, Charles University, Prague, Czech Republic (Presenting author)
Co-author(s) - Pankowska, Anna, Pióchoń, University of West Bohemia, Plzen, Czech Republic
Co-author(s) - Erika-Monk, Martin, Palacky University Olomouc, Olomouc, Czech Republic
Keywords: cremation burials, excavator bias, laboratory techniques
Presentation Preference - Poster

The air of our research is to assess three methods of analysis of cremation burials: computer tomography (CT), micro-excavation; sieving of burial infill. We used eight burials from Jevíčko- Předměstí site (Czech Republic) for the purpose of the study. Four burials were sieved and four burials were micro-excavated and scanned by CT. Burials under the study comprised "pit" burials, um burials and um-sherd burials. Results show significant bias caused by possible indelicacy handling by the excavator. The most useful method for analyzing highly fragmented burnt bone samples appears to be computer tomography (CT) together with micro-excavation. When only CT is used, the precise bone identification is not possible, whereas during micro-excavation tiny objects like metal slags can be overlooked, discolocated fragments lost, and burial volume measured imprecisely. Combination of the two methods ensures that the excavator reconstructs activities of past populations and not results of his/her own procedure.

TH5-04 Abstract 11
Cinerary urns radiology and knowledge sharing: a web-based "paleopacs" proposal
Author - Innocenti, Dario, Monfalco, Italy
Co-author(s) - Simoni, Francesco, Research Unit of Palaeoradiology and Allied Sciences LTS- SCIT, Azienda Sanitar, Trieste, Italy (Presenting author)
Keywords: Cinerary urns, Database
Presentation Preference - Poster

Cremation is a ritual treatment of the dead body that represents both a potential source of notices about the ancient historic societies and a real challenge for a physical anthropologist. With the introduction in the medical clinical practice of digital high-definition powerful radiological tools (MDCT, RM, QICT, CBCT etc.), is possible to carry out a non-destructive study of the cinerarium and its cremated remains in some way comparable with laboratory micro-excavation. Unfortunately, actual studies are based on a relative restricted number of cases, while the problems that we must tackle in correct interpretation of the images and the quantitative results need a large base of data and a effective share of the experience about it.

PACS (Picture Archiving and Communication System) can be viewed as a cornerstone of the digitization of diagnostic medical images. Born in the eight decade of the last century, PACS is a powerful system of real-time, full-time exchange medical data imaging system. Moreover, coupling a PACS with a clinical database, it's possible to create complex and useful digital shared medical records.
On the basis of this experience is possible to project and build a PACS dedicated to paleoradiological and archaeological images and data, filling the gap of the actual relative paucity and dispersion of the paleoarchaeological studies. This operation is not trivial because many specific problems must be solved as standardization, architecture, reliability and sharing rules of the system. A web-based, open source paleoPACS project and prototype with a section devoted to radiology of ancient cineraria is analyzed and presented.

TH5-04 Abstract 12
Complexities and considerations for the analysis of cremated remains
Author - Nicholls, Rebecca, University of Bradford, Bradford, United Kingdom (Presenting author)
Keywords: Complexity, Cremation, Strategy
Presentation Preference - Poster
This poster discusses the complexities of examining cremated bone, drawing upon examples from urnfield cemeteries in Slovenia, and Early Iron Age cemeteries in northern Croatia. Approximately 350 sets of cremated remains have been analysed as part of the ENTRANS (Encounters and Transformations in Iron Age Europe) Project. These assemblages have undergone a range of excavation and post-excision strategies, the results of which have raised questions regarding the analysis of burnt human remains. This poster addresses the importance of context when interpreting graves containing cremated remains, as well as more practical considerations, such as the likelihood of obtaining age and sex data. Another crucial aspect when examining cremated remains is the recognition of animal bone. Commonly, the remains of animals may be removed as part of the post-excavation sorting process, but the identification of species and oxidation level can contribute to wider interpretations of funerary practices in the past. Although the analysis of cremated human bone can be problematic, this study demonstrates the benefits of investigating cremated remains as a method of elevating our understanding of funerary processes in the past.

TH5-04 Abstract 13
Cremated Human Remains of the Late Roman period of the Middle Volga Region, Russia
Author - Makarova, Ekaterina, Khalikov Institute of Archaeology, Kazan, Russian Federation (Presenting author)
Keywords: Komarovo burial ground, the Late Roman period, the Middle Volga Region
Presentation Preference - Poster
The research focuses on human remains from Komarovo burial ground (the first half of the 6th - the first half of the 7th centuries). The excavations have been conducted since 2013. Currently, 21 cremated burials have been unearthed. These burials can be divided into three groups: human, animal and mixed burials. Four burials among them can not be attributed to any of the groups due to fragmentariness and small amount of bones remained.

Human burials. The maximum size of the fragments does not exceed 40-50 mm. The total weight of bones varies from 150 to 850 grams. As regards the colour characteristics, the bones of white and pale-grey colour predominate. The colorimetric scales comparison revealed the maximum temperature of cremation that did not exceeded 700° C. In a number of cases, the remains contain transverse fractures, frequently in a curvilinear pattern, and more irregular longitudinal splitting. These features bear an evidence that the bodies were cremated during the first months after death, when bones still contain lipids and organic elements. Animal burials. Two burials were attributed to this group. Unfortunately, the species were not identified within the framework of this research. The maximum total weight of bones in such burials was 1 kilogram. The colour characteristics analysis showed the simultaneous presence of weakly burned, unburnt and white bones, indicating that the temperature of cremation varied from the lowest to over 800° C. Besides the remains with thermal deformation and fissures, these burials also contain burned 'dry' bones, dehydrated and depililated at the moment of cremation.

Mixed burials. The third group contains human and horse remains, with two burials contain inhumations with animal bones. The first one contains the fragments of pelvic skeleton of horse, the second one – the pelvis, the scapula, metapodial of horse. The colour analysis of the identified human remains found the same features specific to the first group. The cremation temperature for the animal remains did not exceed 300° C. The gender and age of cremated people was identified in 14 cases. Only one of them was a 7-8 years old children. Other burials belonged to adults. The majority of them was 45-65 years old women. Only two burials contain remains of men. The 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.
TH5-05 Abstract 01

The Biology of Yersinia pestis and Plague in the 21st Century

Author: Dr. Latham, Wytham, Northwestern University, Chicago, United States of America (Presenting author)

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 – 10,000 years ago. In this presentation, we will discuss the types of infections and diseases specifically caused by Y. pestis, its epidemiological characteristics that are essential and/or unique to plague?

TH5-05 Abstract 02

From Mild to Murderous: How Yersinia pestis Evolved to Cause Pneumonic Plague

Author: Dr. Latham, Wytham, Northwestern University, Chicago, United States of America (Presenting author)

How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease? Yersinia pestis, the etiological agent of plague, is a recently emerged clone of the gastrointestinal pathogen Y. pseudotuberculosis, but the specific genetic changes that enabled Yersinia to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between Yersinia species, we have identified two specific events – the acquisition of the Pla protease and the inactivation of the YadA adhesin – as key steps in the emergence of Y. pestis as an easily transmissible, severe respiratory pathogen. The acquisition of the Pla protease enabled ancestral Y. pestis strains to grow to high levels in the lungs and cause a fulminating, multifocal severe pneumonia, while the loss of YadA shifted the respiratory infection from a restricted, granuloma-like pathology to a loosely contained, easily expelled state. Indeed, the loss of YadA by Y. pseudotuberculosis may have been a key step by which Y. pestis acquired the ability to be spread by respiratory droplets, thus enabling epidemics of pneumonic plague.

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)

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. Avianca rhinoceros and Rattus rattus. The possible origins of the disease and its connection with the first urban centres of Egypt and Mesopotamia are discussed taking into account climatic, environmental and archaeological evidence. The hypothesis of the spread of the Black Death via trade links with Asia and Europe, in relation to the relevant archaeological record are also explored.

TH5-05 Abstract 04

Reconstructing ancient pathogens - discovery of Yersinia pestis in Eurasia 5,000 Years Ago

Author: PhD Rasmussen, Simon, Technical University of Denmark, Kgs. Lyngby, Denmark (Presenting author)

How do new pathogens emerge, and how do these pathogens take advantage of host processes and pathways to cause disease? For example, Yersinia pestis the etiological agent of plague, is a recently emerged clone of the gastrointestinal pathogen Y. pseudotuberculosis, but the specific genetic changes that enabled Yersinia to cause the respiratory disease known as pneumonic plague are not well understood. By using a mouse model of respiratory infection combined with comparative genetic and genomic studies between Yersinia species, we have identified two specific events – the acquisition of the Pla protease and the inactivation of the YadA adhesin – as key steps in the emergence of Y. pestis as an easily transmissible, severe respiratory pathogen. The acquisition of the Pla protease enabled ancestral Y. pestis strains to grow to high levels in the lungs and cause a fulminating, multifocal severe pneumonia, while the loss of YadA shifted the respiratory infection from a restricted, granuloma-like pathology to a loosely contained, easily expelled state. Indeed, the loss of YadA by Y. pseudotuberculosis may have been a key step by which Y. pestis acquired the ability to be spread by respiratory droplets, thus enabling epidemics of pneumonic plague.
Over a period of 150 years from about 1200 BC, the Mycenaean states collapsed. The great Mycenaean centres did not decline slowly during this period, but suffered sudden destruction at the very peak of their prosperity. Five hypotheses have been proposed to explain the collapse: invasion, civil war, local risings, earthquakes and climate change. However, none of them seems to provide a satisfactory explanation of the existing archaeological material. At about the same time, similar disturbances and destruction also afflicted Cyprus, Syria and Anatolia, and the Hittite empire came to an end. The temporal and geographical distribution of these disorders 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 episode of bubonic plague with high mortality in the eastern Mediterranean region at the relevant time. Recent analyses of Bronze Age DNA sequences resembling Yersinia pestis indicate that the infection was endemic in human populations, and that it acquired sufficient virulence to cause bubonic plague at some point in time between 1600 and 950 BC.

L. Wallage: Was the disruption of the Mycenaean world caused by repeated epidemics of bubonic plague? Opuscula Archaeologica 2012: 231-128
THE5-05 Abstract 10

Plague in Valencia, 546: A Case Study of the Integration of Texts and Archaeology

Author - Gruber, Henry, Harvard University, Cambridge, United States of America (Presenting author)

Keywords: bubonic plague, mass graves, Spain

Presentation Preference - Oral

Although so-called Justiniacnic Pandemic of Yersinia pestis that began in the early 540s dramatically altered the History of the Mediterranean, the information about it is fragmentary. This is especially true in the Western Mediterranean, where few narratives or documents reveal the impact. Archaeology can fill these gaps. Recent work on the prevalence of mass graves in the late- and immediately post-Roman world suggests that mass graves, properly understood, can serve as a proxy for mass death. However, despite the work being done to bring together the documentation of these graves, it has been difficult to know whether these graves result from plague, famine, violence, or some other unknown cause.

In this paper, I will argue that the canons of the Council of Valencia provide us with a test case for combining archaeological and philological evidence for the Justiniacnic Pandemic. The council was held in 546, three years after the first outbreaks of plague in Spain. The fifth canon is concerned with the sudden and unexpected death of bishops and legislates that bishops be buried “in their own place”, so that “the old traditions for burying bishops might not be dishonored.” Given the large number of sixth-century mass graves from Valencia, concern about the proper burial of bishops “in their own place” suggests an institutional reaction to the plague. This is a key to understanding the cultural impact of the epidemic. The evidence, however, is not straightforward.

The paper is divided into three parts. The first analyzes the canon within the context of debates on the care of the dead in Late Antiquity. The second studies the archaeological evidence for burials in Valencia, both those of bishops within the sixth-century ecclesiastical complex and the mass graves that are currently being documented. The third reflects methodologically on the potential for integrating church documents and funerary archaeology. This study will use the concatenation of evidence from Valencia to both chart a specific instance of the Late Antiquite plague and showcase the promise – and difficulty – inherent in the interdisciplinary study of bubonic plague.

THE5-05 Abstract 11

Germany and the Black Death: a zoonoarchaeological approach

Author - MA Pavlin, Prohamaio Dimiropoulos, Ludwig-Maximilians-Universität München, Munich, Germany (Presenter)

Keywords: Black Death, livestock keeping, size

Presentation Preference - Oral

Zooarchaeology is the study of faunal remains from archaeological sites. Animal bones can be used to track changes e.g. in herd composition, size or animal health. Significant changes in size over short periods of time are a testimony of the human influence upon their livestock. An increase in size can be triggered through food of higher quality, improvement of keeping conditions, but also through the import of new breeds from areas with specialized animal breeding. A decrease of size on the other hand is interpreted as deterioration caused not only by exogenous factors such as climatic shift and epizootic diseases, but also by sociopolitical and demographical changes. 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 this paper is on German Late-Medieval and Reg Marginal 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.
Bacterial Cartography and Historiography of Plague

**Author:** Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)

**Co-author(s):** Klunk, Jennifer, McMaster University, Hamilton, Canada

**Co-author(s):** Varlık, Nükhet, Rutgers University, Newark, United States of America

**Co-author(s):** Poimar, Hendrik, McMaster University, Hamilton, Canada

**Keywords:** ancient DNA, historic disease spread, medieval plague

**Presentation Preference:** Poster

There is tremendous variation in the proposed routes of historical plague due to the sparseness and ambiguity of mortality records. In addition, the majority of these contemporaneous sources are non-specific with regards to the cause of death. To address these limitations, genetic data from ancient pathogens provides a unique line of evidence for identifying and mapping the spread of disease. Ancient DNA (aDNA) in combination with archival documents stands to contribute a novel perspective by focusing the analytical lens on the bacterium Yersinia pestis, the etiological agent itself. This study aims to critically examine how aDNA and the evolution of Y. pestis can be used to reconstruct the movement of plague in medieval Europe. An exploration of the European plague lineage that is now likely extinct.

**References:**

1. Gustavsen, Lars, Norwegian Institute for Cultural Heritage Research, Oslo, Norway
2. Poinar, Hendrik, McMaster University, Hamilton, Canada
3. Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)
4. Co-author(s) - Gustavsen, Lars, Norwegian Institute for Cultural Heritage Research, Oslo, Norway
5. Co-author(s) - Klunk, Jennifer, McMaster University, Hamilton, Canada
6. Co-author(s) - Varlık, Nükhet, Rutgers University, Newark, United States of America
7. Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)
8. Co-author(s) - Poimar, Hendrik, McMaster University, Hamilton, Canada
9. Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)
10. Co-author(s) - Klunk, Jennifer, McMaster University, Hamilton, Canada
11. Co-author(s) - Varlık, Nükhet, Rutgers University, Newark, United States of America
12. Co-author(s) - Poimar, Hendrik, McMaster University, Hamilton, Canada
13. Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)
14. Co-author(s) - Klunk, Jennifer, McMaster University, Hamilton, Canada
15. Co-author(s) - Varlık, Nükhet, Rutgers University, Newark, United States of America
16. Co-author(s) - Poimar, Hendrik, McMaster University, Hamilton, Canada
17. Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)
18. Co-author(s) - Klunk, Jennifer, McMaster University, Hamilton, Canada
19. Co-author(s) - Varlık, Nükhet, Rutgers University, Newark, United States of America
20. Co-author(s) - Poimar, Hendrik, McMaster University, Hamilton, Canada
21. Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)
22. Co-author(s) - Klunk, Jennifer, McMaster University, Hamilton, Canada
23. Co-author(s) - Varlık, Nükhet, Rutgers University, Newark, United States of America
24. Co-author(s) - Poimar, Hendrik, McMaster University, Hamilton, Canada
25. Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)
26. Co-author(s) - Klunk, Jennifer, McMaster University, Hamilton, Canada
27. Co-author(s) - Varlık, Nükhet, Rutgers University, Newark, United States of America
28. Co-author(s) - Poimar, Hendrik, McMaster University, Hamilton, Canada
29. Eaton, Katherine, McMaster University, Hamilton, Canada (Presenting author)
30. Co-author(s) - Klunk, Jennifer, McMaster University, Hamilton, Canada
31. Co-author(s) - Varлит, Nükhet, Rutgers University, Newark, United States of America
32. Co-author(s) - Poimar, Hendrik, McMaster University, Hamilton, Canada
33. Eaton, Katherine, McMaster University, Hamilton, Canada ( Presenting author)
of eastern Croatia, including other techniques of remote sensing such as satellite infrared images, resulted in discovery of many previously unknown prehistoric sites. We should emphasize a large number of settlements with circular enclosures which can be associated to the Sopot culture. A systematic analysis and interpretation of all obtained images helped improve our insight into settlement patterns of the Sopot culture, its relation to earlier Starčevo culture settlements, but also our entire knowledge about settlement density in the Neolithic of southern Carpathian Basin. The project also revealed numerous links and similarities in settlement patterns of the Sopot culture to other contemporaneous culture areas of central Europe and to some extent in the Balkans. The contributions are considerable, under forest cover or not, but the zone with woodland needed to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be increased in the future).

The raw data have been processed jointly by teams of the french Ministry of Culture and Communication and the Office National des Forêts. They generated images ready to be used in archaeological analysis on more than 300 km² (situation in 2015 - to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be increased in the future).

A re-evaluation of the regional archaeological documentation then forces us to reconsider the state of knowledge, particularly in terms of regional archaeological mapping. Dozens of new settlements, or anomalies, need to be added in the National archaeological map and inventory. In the same meaning, the global understanding of the territorial organization from Gallic and Gallo-Roman periods is considerably renewed. Indeed, the oppida (hill forts) that did not exist in this part of the Seine valley are particularly well readable, and the understanding of their insertion in the territorial organization becomes more relevant. Their morphology and their relation to the toponymy and the road system are greatly reinterpretated. In addition, the “antique” road called “Chaussée Jules César”, serving the plateau on the north side of the Seine, finally shows his consistency as a strong element of organizing Cæsian and Vitalian roads. This organization seems largely inherited from a structure already in place before the end of the Iron age. Connected with the latest studies in geoarchaeology and archaeogeography, the new data from LIDAR also reveal the great adaptation of the drawing of the gallo-roman road to the territory through which it passes (topography, hydrology, toponymy).

Collecting informations and data analysis will continue for several years, but the data from the LIDAR have already been used in two PhD and several Master’s degrees. Two systematic excavations, initiated in 2012, are strictly the result of the new opportunities offered by this tool under development. Medieval, modern and contemporary times, also benefit from this data renewal. But many things are still to come.

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 seawater, with the global climate changing, by calibrating the defense structures against the sea accordingly.

This very appropriate survey campaign had covered the public forests and also numerous private woods of lesser importance. The LIDAR data have been processed jointly by teams of the Ministry of Culture and Communication and the Office National des Forêts. They generated images ready to be used in archaeological analysis on more than 300 km² (situation in 2015 - to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be increased in the future).

A re-evaluation of the regional archaeological documentation then forces us to reconsider the state of knowledge, particularly in terms of regional archaeological mapping. Dozens of new settlements, or anomalies, need to be added in the National archaeological map and inventory. In the same meaning, the global understanding of the territorial organization from Gallic and Gallo-Roman periods is considerably renewed. Indeed, the oppida (hill forts) that did not exist in this part of the Seine valley are particularly well readable, and the understanding of their insertion in the territorial organization becomes more relevant. Their morphology and their relation to the toponymy and the road system are greatly reinterpretated. In addition, the “antique” road called “Chaussée Jules César”, serving the plateau on the north side of the Seine, finally shows his consistency as a strong element of organizing Cæsian and Vitalian roads. This organization seems largely inherited from a structure already in place before the end of the Iron age. Connected with the latest studies in geoarchaeology and archaeogeography, the new data from LIDAR also reveal the great adaptation of the drawing of the gallo-roman road to the territory through which it passes (topography, hydrology, toponymy).

Collecting informations and data analysis will continue for several years, but the data from the LIDAR have already been used in two PhD and several Master’s degrees. Two systematic excavations, initiated in 2012, are strictly the result of the new opportunities offered by this tool under development. Medieval, modern and contemporary times, also benefit from this data renewal. But many things are still to come.

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 seawater, with the global climate changing, by calibrating the defense structures against the sea accordingly.

This very appropriate survey campaign had covered the public forests and also numerous private woods of lesser importance. The LIDAR data have been processed jointly by teams of the Ministry of Culture and Communication and the Office National des Forêts. They generated images ready to be used in archaeological analysis on more than 300 km² (situation in 2015 - to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be increased in the future).

A re-evaluation of the regional archaeological documentation then forces us to reconsider the state of knowledge, particularly in terms of regional archaeological mapping. Dozens of new settlements, or anomalies, need to be added in the National archaeological map and inventory. In the same meaning, the global understanding of the territorial organization from Gallic and Gallo-Roman periods is considerably renewed. Indeed, the oppida (hill forts) that did not exist in this part of the Seine valley are particularly well readable, and the understanding of their insertion in the territorial organization becomes more relevant. Their morphology and their relation to the toponymy and the road system are greatly reinterpretated. In addition, the “antique” road called “Chaussée Jules César”, serving the plateau on the north side of the Seine, finally shows his consistency as a strong element of organizing Cæsian and Vitalian roads. This organization seems largely inherited from a structure already in place before the end of the Iron age. Connected with the latest studies in geoarchaeology and archaeogeography, the new data from LIDAR also reveal the great adaptation of the drawing of the gallo-roman road to the territory through which it passes (topography, hydrology, toponymy).

Collecting informations and data analysis will continue for several years, but the data from the LIDAR have already been used in two PhD and several Master’s degrees. Two systematic excavations, initiated in 2012, are strictly the result of the new opportunities offered by this tool under development. Medieval, modern and contemporary times, also benefit from this data renewal. But many things are still to come.

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 seawater, with the global climate changing, by calibrating the defense structures against the sea accordingly.

This very appropriate survey campaign had covered the public forests and also numerous private woods of lesser importance. The LIDAR data have been processed jointly by teams of the Ministry of Culture and Communication and the Office National des Forêts. They generated images ready to be used in archaeological analysis on more than 300 km² (situation in 2015 - to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be increased in the future).

A re-evaluation of the regional archaeological documentation then forces us to reconsider the state of knowledge, particularly in terms of regional archaeological mapping. Dozens of new settlements, or anomalies, need to be added in the National archaeological map and inventory. In the same meaning, the global understanding of the territorial organization from Gallic and Gallo-Roman periods is considerably renewed. Indeed, the oppida (hill forts) that did not exist in this part of the Seine valley are particularly well readable, and the understanding of their insertion in the territorial organization becomes more relevant. Their morphology and their relation to the toponymy and the road system are greatly reinterpretated. In addition, the “antique” road called “Chaussée Jules César”, serving the plateau on the north side of the Seine, finally shows his consistency as a strong element of organizing Cæsian and Vitalian roads. This organization seems largely inherited from a structure already in place before the end of the Iron age. Connected with the latest studies in geoarchaeology and archaeogeography, the new data from LIDAR also reveal the great adaptation of the drawing of the gallo-roman road to the territory through which it passes (topography, hydrology, toponymy).

Collecting informations and data analysis will continue for several years, but the data from the LIDAR have already been used in two PhD and several Master’s degrees. Two systematic excavations, initiated in 2012, are strictly the result of the new opportunities offered by this tool under development. Medieval, modern and contemporary times, also benefit from this data renewal. But many things are still to come.

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 seawater, with the global climate changing, by calibrating the defense structures against the sea accordingly.

This very appropriate survey campaign had covered the public forests and also numerous private woods of lesser importance. The LIDAR data have been processed jointly by teams of the Ministry of Culture and Communication and the Office National des Forêts. They generated images ready to be used in archaeological analysis on more than 300 km² (situation in 2015 - to be increased in the future). The contributions are considerable, under forest cover or not, but the zone with woodland needed to be increased in the future).

A re-evaluation of the regional archaeological documentation then forces us to reconsider the state of knowledge, particularly in terms of regional archaeological mapping. Dozens of new settlements, or anomalies, need to be added in the National archaeological map and inventory. In the same meaning, the global understanding of the territorial organization from Gallic and Gallo-Roman periods is considerably renewed. Indeed, the oppida (hill forts) that did not exist in this part of the Seine valley are particularly well readable, and the understanding of their insertion in the territorial organization becomes more relevant. Their morphology and their relation to the toponymy and the road system are greatly reinterpretated. In addition, the “antique” road called “Chaussée Jules César”, serving the plateau on the north side of the Seine, finally shows his consistency as a strong element of organizing Cæsian and Vitalian roads. This organization seems largely inherited from a structure already in place before the end of the Iron age. Connected with the latest studies in geoarchaeology and archaeogeography, the new data from LIDAR also reveal the great adaptation of the drawing of the gallo-roman road to the territory through which it passes (topography, hydrology, toponymy).

Collecting informations and data analysis will continue for several years, but the data from the LIDAR have already been used in two PhD and several Master’s degrees. Two systematic excavations, initiated in 2012, are strictly the result of the new opportunities offered by this tool under development. Medieval, modern and contemporary times, also benefit from this data renewal. But many things are still to come.
Remotely Visible? The Search for Communities

landscape and communities in a number of case study areas in Ireland. Exploiting the wealth of contemporary documentary engage with early medieval society at a more localised community level.

More than 1,000 years on, early medieval ecclesiastical and secular sites are still clearly visible on the Irish landscape, marking - Oral

Integration, Landscape Archaeology, Remote Sensing

presentation as described in: Rączkowski 2005, Tradition in Power: Vicious circle(s) of aerial survey in Poland).

perspective, where the perceived limitations of other (usually non-invasive) techniques forsake 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 datasets. Despite this general eagerness it needs to be noted that data derived from the AZP programme requires Presentation Preference - Oral

Keywords: archaeological prospection, magnetism-based geophysics, Methodology experiment

Presentation Preference - Oral

Between 2011 and 2014 the authors investigated in detail the protolithic land use and occupation of the Ragneloo 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 protolithic period 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 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 (hut foundations) detected on known protohistoric surface sites, and show that settlement densities have been seriously underestimated. At the Monte San Nicola hilltop, a large-scale magnetometer survey on the sixty soils of the Porto-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 eroded upland valley at Contrada Maddalena, where soils consist of schists and marls (700-1000m asl), large-scale on- and off-site magnetic gradiometry did not result in any archaeological features. However, some seemingly natural magnetic anomalies turned out to have a complex genesis which is still relevant to our understanding of the archaeological surface record. Besides these intensive geophysical studies, we also collected long transects of magnetic susceptibility measurements in all three landscape zones to determine the geological background variation against which any anthropogenic and natural magnetic anomalies would be distinguishable. We discuss several examples of gridred and ungridred on-site MS surveys to demonstrate the effect and implications of this approach.

Love, hate and “vicious circles” of non-invasive methods

Keywords: architectural prospection, magnetism-based geophysics, Methodology experiment

Presentation Preference - Oral

The presentation will deal with the methodological approaches and preliminary results of the “Hidden Cultural Landscapes of the Western Lesser Poland Upland” project. The project’s study area is an area extremely abundant in settlements and 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 forake 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-exavagation prospection tools and in this manner are generally accepted by the archaeological milieu. This approach based on the practical needs of the traditional cultural-historical paradigm pigeonholes such techniques like geophysics or remote sensing solely as prospection methods and denies them the position of fully fledged, though alternative, research tools enabling the study of past landscapes and societies.

A multitude of recent archaeological landscape projects that have taken place in Europe show that such pigeonholing is a definite sign of underused potential. Landscape studies take into account data from territorial units unfaithful even to rescue excavations, allowing the study of large spatial structures within macro regional contexts. They also deal with important (cultural) activities that do not manifest in clear physical forms. Indeed, non-destructive methods mostly fail at procuring material culture and chronological evidence, however they excels 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 consideration is haid into exploring the extremely convenient situation where cultural-historical AZP readily available data can be combined, compared and evaluated with new non-invasive datasets, potentially bypassing limitations and complementing both approaches. This subject also affirms with the “Hidden Cultural Landscapes...” project.

Aerial archaeology, Late Iron Age and Viking Age settlement, Re-Exavating past landscapes

Keywords: Aerial archaeology, Late Iron Age and Viking Age settlement, Re-Exavating past landscapes

Presentation Preference - Oral

A recent aerial archaeological effort in Denmark – An aerial view of the past (translation) – has provided registrations of a number of new sites. These new sites have changed, and continue to change, the understanding of past landscapes.

In this paper, we will present an example from the late Iron Age and Viking Age period (200 – 1050 AD), where sparse data was available prior to the aerial reconnaissance sessions that occurred from 2008 to 2011. The sparsity of data was disturbing, taking into consideration that there exists a direct connection to the Wadden Island area seemed a natural extension and possible travel route inland. On numerous occasions, trade and North Sea contact had been studied, but there seem, in a Danish context, to be a specific focus on the early empiria Ribe and the connecting stream system. This area is situated just south of the Varde Stream system and has drawn the majority of the archaeological attention. Now, the aerial data can add to the understanding of the north Wadden Sea landscape in the late Iron Age and Viking Age periods.

Keywords: Aerial archaeology, Late Iron Age and Viking Age settlement, Re-Exavating past landscapes

Presentation Preference - Oral

Discovering a ‘new’ late Iron and Viking Age landscape along Varde Stream using aerial archaeology

Author - MI Christiansen Broch, Mathias, De Kulturstofskole Museer i Holstebro kommune, Holstebro, Danmark (Presenting author)

Co-author(s) - Helles Olesen, Lis, De Kulturstofskole Museer i Holstebro kommune, Holstebro, Danmark

Keywords: Aerial archaeology, Late Iron Age and Viking Age settlement, Re-Exavating past landscapes

Presentation Preference - Oral

A recent aerial archaeological effort in Denmark – An aerial view of the past (translation) – has provided registrations of a number of new sites. These new sites have changed, and continue to change, the understanding of past landscapes.

In this paper, we will present an example from the late Iron Age and Viking Age period (200 – 1050 AD), where sparse data was available prior to the aerial reconnaissance sessions that occurred from 2008 to 2011. The sparsity of data was disturbing, taking into consideration that there exists a direct connection to the Wadden Island area seemed a natural extension and possible travel route inland. On numerous occasions, trade and North Sea contact had been studied, but there seem, in a Danish context, to be a specific focus on the early empiria Ribe and the connecting stream system. This area is situated just south of the Varde Stream system and has drawn the majority of the archaeological attention. Now, the aerial data can add to the understanding of the north Wadden Sea landscape in the late Iron Age and Viking Age periods.
One interesting feature of the 15 settlements along the Varde Stream system mainly links to an almost preplanned structure. The settlements are situated along the stream with approximately 1 km of distance between each other. This particular situation differs considerably from other areas in West Jutland where the settlements are situated more sparsely. The Varde stream settlements are located mainly on the north side of the meadows that runs along the stream and allows for a utilization of both the meadows and easy access to the Bøfjord and the Wadlen Sea. The settlements are registered mainly as pit-house croppmark, 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 functions of control and power. Did someone force this structure on the settlements or does the settlement location indicate a formalized 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. 

THS-06 Abstract 10

The 16th century In Depth Defenses of the Nissan River Valley Revealed by Remote Sensing

Author - Petersson, Claes B., Jönköping County Museum, Jönköping, Sweden (Presenting author)

Co-author(s) - Norborg, Gabriel B. N., Office of the Governor of the Royal Palaces, Stockholm, Sweden

Keywords: 16th century warfare, LiDAR, Remote sensing

Presentation Preference - Oral

In the late autumn of 1567, during the Nordic Seven Years War, a large Danish army crossed the border and marched into southern Sweden, wreaking havoc on the lands of the enemy. The outnumbered defenders were unable to offer any serious resistance for about a week, thus giving the invasion force free access to the Nissan River Valley – one of the main roads to central Sweden. From this period onwards the valley would henceforth be used by invading armies. The remains of 1567's devastation can still be seen in the landscape today, with the most noticeable features being a string of small earthworks and their defensive character clearly visible to the naked eye. In the last few decades, the use of Remote Sensing techniques, particularly LiDAR, has enabled us to reveal and interpret these remains with a high degree of accuracy.

The remains of these defenses and their historical importance had 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 survey, 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 overstated. In a densely forested landscape, very different from what it looked like in the mid-16th century, modern technologies 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 suffering, with a situation too many parallels to our own time!

THS-06 Abstract 11

Above and below the surface. The use of Remote Sensing in studying the former battlescape

Author - Michal, Jakubczak, Polish Academy of Sciences, Warszawa, Poland
Co-author(s) - Zalewska, Anna, Polish Academy of Sciences, Warszawa, Poland (Presenting author)
Co-author(s) - Myśliwiec, Tomasz, Independent Researcher, Lublin, Poland

Keywords: Central Poland, Great War, Remote sensing

Presentation Preference - Oral

“Ancient cultural 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 Pawka and Bzura” is the scientific project, which reveals that archaeological methods including advanced remote sensing techniques are adequate and universal - regardless of whether they relate to material remains of Paleolithic hunter or last century soldier’s activities – only as long as they are driven by the relevant question. Without it, we never get a relevant answer. The area of our field of research covers over 300 km². Our practices have enabled us so far to produce the questions which can give us an insight into the ways in which the fellowships and clashes of the soldiers, their lives and deaths, influenced the analyzed landscape between 1914 and 1918. We will present the detailed results of archaeological research on selected sites related to Great War and recognized via aerial photography, LiDAR and geophysical surveys. By showing the cemeteries and remains of no man’s land in two different conditions - well preserved in woodland and destroyed by agriculture - we will elaborate the problem of a/ matching the particular Remote Sensing Technique to particular environmental conditions and b/ necessity of enriching the traditional methods of excavations with Advanced Remote Sensing Techniques in order to gain a chance for more complete and complex understanding of ever changing landscape.

THS-06 Abstract 12

3D Photogrammetry/Videogrammetry in Underwater and Aerial Archaeology

Author - Prof. Dr. Block-Berlit, Marco, HTW Dresden, Dresden, Germany (Presenting author)
Co-author(s) - Gehmlich, Benjamin, HTW Dresden, Dresden, Germany
Co-author(s) - Wittchen, Dennis, HTW Dresden, Dresden, Germany
Co-author(s) - Dziczka, Martin, HTW Dresden, Dresden, Germany
Co-author(s) - Ducke, Benjamin, German Archaeological Institute (DAI), Berlin, Germany
Co-author(s) - Suchowska-Ducke, Paulina, Adam Mickiewicz University, Institute for Prehistory, Poznan, Poland
Co-author(s) - Rojas, Raul, Freie Universität Berlin, Berlin, Germany

Keywords: 3D Reconstruction, Structure from Motion, Videogrammetry

Presentation Preference - Oral

Over the past few years, 3D reconstruction from images series (photogrammetry) or video streams (videogrammetry), using robust and fast software tools such as Structure from Motion (SfM) and Multi-View Stereo (MVS), has emerged as a dominant technique in archaeology. The usefulness of these tools is not limited to capturing digital models of single objects or in combination with other 3D capture tools. Underwater Vehicles(UUVs) documenting complete sites and excavation areas. Image-based 3D reconstruction is also a key technique for supporting processes of interpretation and decision making during ongoing field work. In addition, the use of photogrammetric solutions in Underwater Archaeology, using Unmanned Underwater Vehicles(UUVs) will be an important step for archaeological research in flat areas and coastal transition zones that currently constitute some of the most sparsely documented regions of archaeological interest. However, as the volumes of 3D data increase, best-practice and efficient workflows move into focus, as do staff training and access to low-key, low-cost technology. Traditionally working under constraints of strictly limited time and financial resources, archaeologists are pushed, turning to off-the-shelf hardware and free and open source software for data processing. Our contribution will show-case several international case studies that demonstrate how low-cost UAVs/UUVs, free software and well-designed workflows combine to enable archaeologists to capture monuments, sites or entire landscape archives. Our technological focus is on the innovative transition from high-resolution, single-shot imagery to using large numbers of frames extracted from video streams. Despite the lower resolution of the latter, we believe them to be an ideal source of data for robust 3D reconstruction, due to superior recording speed and frame overlap.

THS-06 Abstract 13

Digging into the Swiss Neolithic with Modern Methods – 3D Documentation and Biochemical Analyses

Author - Szelka, Inga, Institute of Forensic Medicine, Bern, Switzerland (Presenting author)
Co-author(s) - Halmer, Albert, Institute of Archaeological Sciences, Bern, Switzerland
Co-author(s) - Campanio, Lorenzo, Institute of Forensic Medicine, Bern, Switzerland
Co-author(s) - Ramstein, Marianne, Archaeological Service of the Canton of Bern, Bern, Switzerland
Co-author(s) - Wehranger, Anja, Institute for Archaeological Sciences, Tübingen, Germany
Co-author(s) - Krause, Johannes, Max Planck Institute for the Science of Human History, Jena, Germany
Co-author(s) - Lösch, Sandra, Institute of Forensic Medicine, Bern, Switzerland

Keywords: 3D documentation, biochemical analysis, Neolithic

Presentation Preference - Oral

Switzerland is known for the well-studied settlement archaeology of the Neolithic period however up to now little is known about the population who inhabited those settlements. With the recent finding of a Neolithic dolmen near Bern a unique opportunity was provided to study Neolithic human remains. The project therefore focuses on dietary habits, migration and population dynamics and includes human remains of further Neolithic sites in Switzerland.
Since such exceptional findings have high scientific potential it is of great interest for an interdisciplinary project. Photogrammetry and 3D scanning were used as the documentation method at the excavation and allowed quick and detailed drawings of scaled plans. To keep the contamination of human remains as low as possible the excavators used various protective equipment.

The human remains are morphologically analysed, the minimal number of individuals is calculated, stable isotope analyses of the isotopes carbon, nitrogen, sulphur, oxygen, hydrogen, strontium and lead will be performed in order to investigate the dietary habits, possible migration patterns and climatic conditions of this time. Furthermore, the ancient DNA will be investigated for population genetics and also to gather information about phenotypes and genetic relationships.

Radio carbon dating will be performed in order to shed light on the chronology of the burials. First radio carbon 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.

---

**TH5-06 Abstract 14**

A view from above: GIS and LiDAR vs. trenches and spades

**Author** - PhD student Daubaras, Mantas, Lithuanian Institute of History, Vilnius, Lithuania (Presenting author)

**Keywords** - GIS, landscape archaeology, LiDAR

**Presentation Preference** - Poster

An ongoing research project focused on Varniai region (eastern Lithuania) is working towards understanding the use of prehistoric (Mesolithic; Neolithic namely) landscapes in this area of 274 km². The approach of surveying for new sites has been employed by means of GIS and LiDAR modelling as well as actual excavations. Here we present primary results of this endeavour as well as shortfalls of GIS and LiDAR modelling if it isn’t used together with an actual archaeo logical fieldwork.

---

**TH5-06 Abstract 19**

Unique burials found in the ancient necropolises in Crimea with the magnetic survey in 2014-2015

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

**Co-author(s)** - Brown, Keri, Manchester University, Manchester, United Kingdom

**Co-author(s)** - Di Miceli, Andrea, ArcheoRes, Perugia, Italy

**Co-author(s)** - Kopp, Rainer, German Archaeological Institute (DAI), Berlin, Germany

**Co-author(s)** - Mattioli, Tommaso, ArcheoRes, Perugia, Italy

**Co-author(s)** - Tykot, Robert, University of South Florida, Odessa, United States of America

**Co-author(s)** - Vlasov, Vladimir, Institute of Archaeology of the Crimea, Simferopol, Crimea

**Co-author(s)** - Lantsov, Sergey, Institute of Archaeology of the Crimea, Simferopol, Crimea

**Co-author(s)** - Nenevolya, Ivan, Bakhchisaray historical, cultural and archaeological museum, Bakhchisaray, Crimea

**Co-author(s)** - Shaptsev, Michail, Institute of Archaeology of the Crimea, Simferopol, Crimea

**Keywords** - late Scythians, burial items, gold jewelry, magnetic survey, North-Western Crimea, ancient necropolis

**Presentation Preference** - Poster

Excavations of the necropolises are extremely important for understanding the synchronism 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 necropoleis of the settlement Djan-Baba studied three not robbed ground children’s graves with a variety of implements and unique family stone cist with numerous graves of 1 c. BC. It was found numerous burial-items, among which glass, pottery red lacquer and stucco vessels, more than 3 thousand of different types of beads, many iron objects and their fragments. Wares made of bronze and white metal are presented by coin and various ornaments, including filigree, some of which are very rare in the Northern Black Sea. It also was found one hundred and eleven small gold items of women’s dresses decor, as well as fragments of gold foil. The burial belonged probably to a woman of noble birth (priestess?). For her, perhaps, connected the specific cult vessels - stucco icon, burial of large non-Black Sea sink, numerous golden objects pointing dressing, pendants, rings.

Another not robbed crypt was discovered in the necropolis of the ancient settlement Kulchuk. In a chamber of the crypt detected 8 adults burials, arranged in two tiers one above the other. The later burial of the upper tier are made in a stretched position on the back with a different position of the limbs. One burial was in a coffin, which is partially preserved the contours of wood decay and iron nails. Upper burial overlap the lower tier, which lay on the floor of the tomb chamber. Of these, in relative anatomical order remained only one skeleton, and the rest were in a fragmented state.

Obviously, the people, who are represented by these bone materials, were first buried in the crypt. Later their remains destroyed, when clearing the space for the next burial. Accompanied the deceased burial items presented with beads, simple, red lacquer and stucco pottery, iron knives, rare types of fibulas, arrowheads, lead rings, pendant made of yellow metal, moon-shape amulet, plaques and belt details.

The investigated crypt was probably used during the second half of 1 c. BC - first half of 1 c. AD and refers to the late Scythian archaeological culture.

Work was carried out by the grant RFFR № 14-06-90403 “Study of underground ancient necropolises of the Western and Eastern Crimea with the help of magnetic survey”.

---

**TH5-06 Abstract 17**

Identifying and Evaluating Neolithic Sites in Italy

**Author** - Dr. Ducke, Benjamin, German Archaeological Institute (DAI), Berlin, Germany (Presenting author)

**Co-author(s)** - Lütj, Friedrich, German Archaeological Institute (DAI), Berlin, Germany

**Co-author(s)** - Komp, Rainer, German Archaeological Institute (DAI), Berlin, Germany

**Co-author(s)** - Petri, Ingo, German Archaeological Institute (DAI), Berlin, Germany

**Co-author(s)** - Goldmann, Lukas, German Archaeological Institute (DAI), Berlin, Germany

**Keywords** - Data processing, Geophysical prospection, Open source GIS

**Presentation Preference** - Poster

Among the many types of sensors available for geophysical surveys, gradiometers, used to detect minute fluctuations in the Earth’s natural magnetic field caused by buried objects and structures, have established themselves as a particularly robust and efficient technology. Our contribution showcases the 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 data operation needed for developing our open source in open source GIS, leveraging the flexibility and standards compliance of that platform. The toolkit 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.

---

**TH5-06 Abstract 18**

Using Aerial- and Ground-Based Remote Sensing for high resolution geophysical surveys

**Author** - Prof. Teluto, Robert, University of South Florida, Odessa, United States of America (Presenting author)

**Co-author(s)** - Alexander, Craig, None, Italy

**Co-author(s)** - Brown, Ken, Manchester University, Manchester, United Kingdom

**Co-author(s)** - Freund, Kyle, Indian River State College, Port Pierce, United States of America

**Co-author(s)** - Hoffer, Manuel, Graz University of Technology, Graz, Austria

**Co-author(s)** - Mattioli, Tommaso, ArcheoRes, Perugia, Italy

**Co-author(s)** - Di Micieli, Andrea, ArcheoRes, Perugia, Italy

**Co-author(s)** - Mentoni, Italo, Soprintendenza Archeologia della Puglia, Foggia, Italy

**Keywords** - early agriculture, remote sensing, Tavolieri

**Presentation Preference** - Poster

The Tavoliere of northern Puglia (southern Italy) was a dense area of early agricultural settlements in the Neolithic (ca. 6200-4000 BC) of western Europe and was, probably, the point of introduction into Western Europe of farming. Several hundred sites with ditched enclosures were initially identified from aerial reconnaissance photography following WWII, with more than 800 in total in an area of several hundred square kilometers. Starting in 2013, we have conducted walking surveys of more than 25 sites, collecting about 1200 ceramic artifacts as well as many obsidian and flint tools, and 70 clay samples from nearby watercourses. These have all been analyzed using a portable X-ray fluorescence spectrometer, specifically for trace elements, with clear groupings of ceramics (which include non-diagnostic coarse wares, Impressed Wares, painted coarse and medium wares, Masseria La Quercia wares and Passo di Corvo fine wares) and a suggestion of some south-to-north movements. Most of the obsidian comes from the Aeolian island of Lipari (about 330 km to the south), and about 10% from Palmarola (about 230 km
to the west). These data have already expanded our understanding of socioeconomic developments in the Tavoliere during the new way of life of the early Neolithic.

In 2015, in order to select sites for future excavation, advanced remote sensing was conducted in order to assess the precise location and preservation of the prehistoric ditches, considering the potential damage caused by modern deep-plowing since the original aerial photographs were taken. A remote-controlled unmanned aerial vehicle (UAV) and ground-level magnetometry/ electrical resistance tomography were used at several sites following the harvesting of the fields. A fixed wing SenseFly eBee UAV was used to create near-infrared (NIR) imagery at four sites: two around Lucera in the northeast of the Tavoliere, one near Foggia in the center, and one in the southwest near Cerignola. Photogrammetry produced a high-resolution (10 cm/pixel) digital terrain model. The magnetometer was used in transects of 20 x 160 m at two of these sites (Posta Barone Delle in the south, Posta del Gudicci 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.

---

**THS-06 Abstract 18**

**Geophysical and Archaeological research on Late Roman Iron-smelting site at Virje (Croatia)**

**Author:** Medarić, Igor, Gendar d.o.o., Ljubljana, Slovenia (Presenting author)
**Co-author(s):** Mušič, Branko, Gendar d.o.o., Maribor, Slovenia

**Presentation Preference:** Poster

Archaeological site Virje is situated in the Croatian lowland, on the right bank of the upper course of Drava river. On a slightly sloped area named Šuline, 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 applied on digital elevation model in combination with aerial photography were carefully analyzed and compared with excavated archaeological structures. All the gathered information importantly contributed and changed our views on this unique multiperiodical site and its environment.

---

**THS-07 Abstract 01**

**Multilevel approaches to dietary reconstruction in Anglo-Saxon to Medieval UK**

**Author:** Radini, Anita, Department of Archaeology University of York, York, United Kingdom (Presenting author)
**Co-author(s):** Nikita, Efthymia, STARC-The Cyprus Institute, Nicosia, Cyprus

**Keywords:** dental calculus, diet, health

This presentation focuses on the use of complementary methods for dietary reconstruction in a number of Early to Late Medieval assemblages from Leicestershire and Rutland, in the East Midlands, UK. These methods include the macroscopic analysis of dental wear and its dependence on diet, as well as the use of dental calculus analysis and late medieval diets. Such a combination of techniques has rarely been applied to date, and never before in the region examined. These assemblages were selected because dietary reconstructions, especially for the Early Medieval period, are a primary area of interest highlighted by the Archaeology Research Agenda for the region. The Early Medieval material under study dates to 500-900 AD. The Late Medieval period dates to 1250-1450 AD and originates in the cemeteries of St. Michael's and Rothley, while the Late Medieval material dates to 1250-1450 AD and originates in the cemeteries of St. Michael's and Rothley.
In conclusion, this multi-disciplinary study compares human osteological results with dietary and nutritional records by individual highlight those differences. Nutritional assessment of the diet included observations concerning iron, with emphasis on bio-availability. For instance, phytates, abundant in sorghum grains, inhibit iron absorption. HFE gene mutation sequesters iron in bodily tissues rather than eliminating it (hemachromatosis). Ancient DNA analysis that will include mapping the two alleles associated with this gene mutation is in progress. XRF analysis of dried human blood has detected elemental iron, which the HFE gene mutation should have sequestered. Significant results are expected in this area.

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 Bonnirk period (AD 600–900) to the present day. Interpretation of the radiocarbon dates has been hindered by radiocarbon offsets, caused by marine resources, in the diets of humans and mammals sampled for radiocarbon dating. Analysis of ancient human from the Point Barrow vicinity have thus far provided high 13C values between -15.7‰ and -12.6‰, and high 15N values between +17.7‰ and +22.4‰, indicating diets that are very rich in marine protein. Radiocarbon ages from marine-derived carbon will be anomalously old if not corrected for the Marine Reservoir Effect (MRE), the radiocarbon age offset between contemporaneous marine and terrestrial carbon. Modern MRE values from the Alaskan Arctic are highly varied, from several hundred to over a thousand years, due to the extended residence time of 14C in oceanic environments. It is questionable how reflective modern values are of those from the past because changes in upwelling, climate, and ocean currents will inevitably result in changes in local MRE values through time. Here we present new temporally specified 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.

In sickness and in health. A community in death from a Neolithic Megalithic tomb (La Mina, Spain)

Non-Destructive Trace Element Analysis of Human Bones to Examine Diet and Mobility

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

Keywords: ancient diet, diet reconstruction, nutrition

Presentation Preference: Oral

Non-Destructive Trace Element Analysis of Human Bones to Examine Diet and Mobility

Author: Prof. T. Robb, Robert, University of South Florida, Odessa, United States of America (Presenting author)

Keywords: ancient diet, bone chemistry, elemental analysis

Presentation Preference: Oral

The theoretical basis for elemental analysis of human bone to study diet and mobility is well-established, yet until recently the number of studies done is few and far between. Instead, analyses of carbon, nitrogen, oxygen, and strontium isotope analysis have dominated "bone chemistry" studies over the last 25 years. Nevertheless, elemental analysis of calcium (Ca), iron (Fe), barium (Ba), strontium (Sr), lead (Pb), zinc (Zn), arsenic (As) and other elements can support and supplement isotope-based interpretations, and be of significant use in cases where bone collagen is not preserved. Elemental analysis, however, has potentially greater concerns than isotope studies, due to degradation and contamination of the mineral portion of bone. Also, most previous elemental studies have been just as destructive, with samples well-cleaned,ashed, and put into solution for analysis by ICP spectrometry. Over the last decade, however, non-destructive desk-top and portable (hand-held) X-ray fluorescence (XRF) spectrometers have become widely available to archaeologists. While now regularly used for trace element analysis of obsidian and other lithics, and major element composition of metals, it appears potentially useful for studies of skeletal remains as well. In the United States and other countries, isotope analyses of skeletal remains have become increasingly difficult, and for that reason elemental 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 North America and the Americas. One of the first studies done was on individuals from inland and coastal sites in Florida. The small amounts of variability among individuals at each site suggest little contamination, while the clear differences between the sites are most likely due to varying proportions of seafood in the diet. This was followed by analyses of many individuals from site in Argentina, Bolivia, Brazil, Chile, Colombia, Italy, Portugal, and most of whom were also analyzed isotopically and with interpretations made about the dietary importance of maize, millet, and aquatic resources with patterns based on sex and status. Overall, the precision of the pXRF on most elements of interest is excellent; a separate issue however is the calibration of the raw data produced and whether the results can be compared with studies done by ICP spectrometry. Further studies are being conducted on tooth enamel and roots, to test whether non-destructive analysis may be reliable for assessing childhood diets. The reliability and utility of this method of elemental analysis of skeletal remains to study ancient diets will be discussed.

Estimating 7R Variation to Develop Chronologies for Humans and Animals with Marine-Rich Diets

Author: Dr. K. Anthony, University of Glasgow, East Kilbride, United Kingdom (Presenting author)

Co-author(s): - Jensen, Janne, Upsala-ängby, Corporation, Science LLC, Barrow, Alaska, United States of America

Co-author(s): - S. E. K. M. W., Golden, University of Glasgow, East Kilbride, United Kingdom

Keywords: Asian Arctic, Bayesian Chronological Modelling, Marine Reservoir Effect

Presentation Preference: Oral

Over 200 radiocarbon dates from archaeological contexts are available from the Point Barrow vicinity, along northern Alaska's Arctic coast, which has been occupied by hunter-foragers from the Bonnirk period (AD 600–900) to the present day. Interpretation of the radiocarbon dates has been hindered by radiocarbon offsets, caused by marine resources, in the diets of humans and mammals sampled for radiocarbon dating. Analysis of ancient human from the Point Barrow vicinity have thus far provided high 13C values between -15.7‰ and -12.6‰, and high 15N values between +17.7‰ and +22.4‰, indicating diets that are very rich in marine protein. Radiocarbon ages from marine-derived carbon will be anomalously old if not corrected for the Marine Reservoir Effect (MRE), the radiocarbon age offset between contemporaneous marine and terrestrial carbon. Modern MRE values from the Alaskan Arctic are highly varied, from several hundred to over a thousand years, due to the extended residence time of 14C in oceanic environments. It is questionable how reflective modern values are of those from the past because changes in upwelling, climate, and ocean currents will inevitably result in changes in local MRE values through time. Here we present new temporally specified 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.

Science and multidisciplinarity in archaeology

TH5

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology

TH5Science and multidisciplinarity in archaeology
The Megalithic tomb of La Mina (Acutibilla de las Peñas, Soria), dating to 3890–3660 BC, is unique among the passage graves of Spain and Ireland. It has been buried in the communal megalithic chamber. Different demographic profiles emerge for the men and women buried there, hinting at separate social roles between the sexes. There is evidence that individual health had an influence after severe trauma might also have had an influence on the selection. Especially interesting are the distinct patterns of deficiency as well as the traces of infectious diseases which vary between the sexes. The combined study of the demographic profile, pathology, and dietary data obtained in an ongoing stable isotope analysis will allow unique insights into the life histories and the health status of the individuals represented in the communal monument of La Mina and widen our understanding of such sites in general. The full potential of investigations concerning past communities can only be obtained by an integrative approach encompassing archaeology, physical anthropology as well as further bioarchaeological procedures which will still continue for the Megalithic tomb of La Mina.

**References:**


---

### TH5-07 Abstract 06

**A Relationship between Diet and Burial Rite at Neolithic Osłonki 1: δ13C and δ15N studies**

**Author – Dr. Budd, Chelsea, Burnwood, United Kingdom (Presenting author)**

**Co-author(s) – Bogucki, Peter, Princeton University, New Jersey, United States of America**, **Co-author(s) – Grygiel, R., Museum of Archaeology and Ethnography, Łódz, Poland**, **Co-author(s) – Lopato, S., Institute of Biology, Łódz, Poland**, **Co-author(s) – LLG, M. C., Hull University, Hull, United Kingdom**, **Co-author(s) – Schulting, R., Oxford University, Oxford, United Kingdom**

**Keywords: Neolithic Diet, Stable Isotope Analysis, Status Burials**

**Presentation Preference – Oral**

The introduction of agricultural subsistence practices is often cited as one of the key turning points in human history (Hodder 1990, Whittle 1998, 2003, Thomas 1999). The consolidation of secondary farming practices however is comparatively understudied in the archaeological literature – even though it represents a critical step in the development of modern human populations. The development of secondary farming practices, and the subsequent development of food surplus, lead to greater periods of time dedicated to activities that were directly related to the social evolution of human populations (Currie et al. 2015).

**Diet, and the transition from hunter-gather subsistence practices to the adoption of farming techniques, is a defining characteristic of the Neolithic period in Europe (approx. 7th to 4th millennia BC).** To date, the evidence for social status and rank demonstrating a direct correlation with diet via the archive of dietary stable isotope analysis from bone collagen, is largely scarce in prehistoric Europe (Kni�per et al. 2019). This research presents stable isotope studies from Osłonki 1 (δ13C: -23.40 – 0.00 cal BC), a Middle Neolithic site located in North-Central Poland. It forms part of a cluster of sites belonging to the Brzeżno Kujawski Group, which observe phases of occupation associated with the Linear Pottery, Lengyel, and TRB cultures. Osłonki 1 is synonymous with the presence of burials that contain elaborate copper artefacts, such as copper plaques, beads, and ribbons, in select human burials. Other individuals interred at the site have non-copper burial goods, such as Taisses, bone tools, and flint – which form striking resemblance to grave goods retrieved from sites further north in the Baltic (such as Eńgale). Finally, some humans at Osłonki 1 were buried with no grave goods at all.

**This study investigates a site in the area culturally and economically undergoing its secondary phase of Neolithic transition, specifically to examine the evidence for a link between food access (by δ13C and δ15N values of bone collagen) and social status/chain (as evidenced by the stratification of grave goods, e.g. copper vs. non-copper).** The consolidation of farming practices, and the increasing presence of food surplus, has the potential to lead to a rise in social inequality and differential access to foods based on social status (Hayden 2001). The δ13C and δ15N collagen values from human individuals and fauna at Osłonki 1 (n=161) show early (statistically significant) evidence for 'status' exerting control over diet during the Middle Neolithic period in Poland. Individuals buried with copper grave goods are more likely to have enriched δ13C values compared to their non-copper counterparts. No relationship is evidenced by any other factor (such as sex or age), and no significant variation in δ15N values was observed.

---

### TH5-07 Abstract 07

**Diet, health and culture: Females vs Males**

**Author – Dr. Koepke, Nikola, University of Zurich, Zurich, Switzerland (Presenting author)**

**Keywords: gender, long-run trajectory, net nutrition**

**Presentation Preference – Oral**

In order to investigate diet and health in archaeological context one interdisciplinary concept – besides classical 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 (Koromos, 1998). Essential fact is that diet and health (subsumed as the net nutritional status: WHO, 1995) are closely interrelated to social and cultural behaviours respectively to socio- economic-cultural status and identity. Important aspect to consider in this framework is that also a socially continued differentiation of gender roles and related inequality in entitlements and distribution bears the danger to directly affect diet and health. As most pre-industrial societies tended to be patriarchically organised gender-related inequality potentially meant a disregard of the female part of the population (Horrell, Meredith & Oxley, 2009). Female discrimination can result in either immediate feminica after birth (George, 2006; Klasen & Wink, 2002; Otso, 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 decreased nutritional status during females and their male contemporaries during their growth years. If significant this affects height dimorphism and health disparities later in life (Bogn, 1999; Ewalt & Tanner, 1978; Fronclit & Begin, 1993; Harris, G. & Machado, 2009; Moradi & Guntupalli, 2009; Sabir & Ebrahim, 1984). In this context, two aspects are of interest for the long-run development of well being of the total population: (1) the variation in gender inequality and its immediate effect on the net nutrition outcome. (2) the potential of an extended burden of malnutrition in females affecting also the whole next generation – via hampered foetal development of either sex due to the "small uterus effect" and inadequate maternal care also force the offspring to endure malnutrition (Barber, 1995; Currie & Vogl, 2013; Darmen & Ban, 2010), which can cause an inter generational trajectory in health- and cognitive human capital. In this paper I will attempt to provide information on the trajectory of gender-specific inequality in different regions of Europe in ancient times compared to pre-historic and later centuries. In order to do so I compiled observations for the 800 BC to 14th century BC concerning the type of job and its employment are differences in the ratio of male to female individuals survived until adulthood (measuring the female deficit) as well as the variation in relative dimorphism of male to female height (measuring possible net nutrition discrepancies), and its potential inter-generational legacy.
research compares the microwear found on women and men’s teeth in order to infer if they had eaten the same kind of food. This study is currently being conducted, and we will present its first results in the conference.

TH5-07 Abstract 09
Fish ‘n’ Picts: Reconstructing diet in early Medieval Scotland using stable isotope analysis

Author - Kate Britton, Aberdeen, United Kingdom (Presenting author)
Co-author(s) - Moldner, Ondula, University of Reading, Reading, United Kingdom
Co-author(s) - Roderick, Kate, University of Reading, Reading, United Kingdom
Co-author(s) - Richards, Mike, University of British Columbia, Vancouver, Canada
Co-author(s) - Talamo, Sarah, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany
Co-author(s) - Noble, Gordon, University of Aberdeen, Aberdeen, United Kingdom
Keywords: early Medieval, Picts, Stable isotopes
Presentation Preference: Oral

First mentioned in late Roman writings as troublesome tribal groupings north of the Roman frontier, the Picts went on to become the first kingdoms in eastern Scotland in the post-Roman period. Although current archaeological investigations are unearthing important new information about the Picts, many aspects of the Pictish past remain elusive. Given the dearth of historical sources and current lack of Pictish domestic sites and animal bone assemblages, very little is known about many economic and social aspects of Pictish lives—such as diet. The stable isotope analysis of bone collagen is useful as a means of assessing past dietary habits, particularly the relative contribution of marine and terrestrial protein to the diet. These techniques also have the potential to investigate dietary variations within groups, such as between different biological sexes or burial types.

Here, we present carbon and nitrogen isotope data from bone collagen from a number of Pictish burials and cemeteries, providing novel insights into Pictish lifeways. Data generated are compared to limited previously published Pictish datasets and to data from other contemporary archaeological British groups. Results suggest limited in-group dietary variability, and a relatively homogenous diet across the areas studied. Marine fish consumption is low relative to later Medieval and Viking sites in Scotland, and in comparison to contemporary Romano-British samples, but similar to data derived from Anglo-Saxon sites. The conceptual role and importance of fish, rivers and other water bodies to the Picts is also briefly explored (particularly with regards to the positioning of cemeteries sites, and the depiction of fish on Class I stones).

TH5-07 Abstract 10
Regional differences in subsistence economy in 16-19th c.c. Lithuania: stable isotope evidence

Author - S. Kipšytė, R. Vidmantas, Nature research centre, Vilnius, Lithuania (Presenting author)
Co-author(s) - Lüdin, Kerstin, Stockholm University, Stockholm, Sweden
Co-author(s) - Eriksson, Gunilla, Stockholm University, Stockholm, Sweden
Co-author(s) - Daugnora, Linas, Kaunas University, Kaunas, Lithuania
Co-author(s) - Pličiauskienė, Gedrė, Lithuanian Institute of History, Vilnius, Lithuania
Co-author(s) - Remelius, Valdimantas, Center for Physical Sciences and Technology, Vilnius, Lithuania
Co-author(s) - Janauskas, Rimantas, Vilnius University, Vilnius, Lithuania
Keywords: diet, stable isotope
Presentation Preference: Oral

Stable isotope analysis now is a “golden standard” for studying variations in the past diet and life history. Previous studies performed in medieval Lithuania have shown that the human protein intake was mostly derived from C3 plants and C3 feeding animals and possibly some freshwater resources with little variation among young and adult individuals (Whitmore et al., 2014).

In this study, stable isotope analysis of human skeletons from different populations representing various regions of Lithuania (16-19th c.c.) were performed. To track dietary evidences, animal bone samples from similar places and time periods were analysed as well. The results showed significant differences in stable nitrogen isotope ratios between coastal, urban and inland site communities. Meanwhile, the carbon stable isotope ratios were less variable and showed a strong dependence on the C3 plant environment.

Different strategies in subsistence economy could shape the stable isotope signals in these communities. However, 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 (Fitger, 2010, 123 and 128; Novak et al., 2012, 446; Novak, pers. comm.). The diet of the population was mainly terrestrial one which was typical for the period (Kelly, 2000, 316 and 322; Fitger, 2010, 127; Lahane and Delaney, 2010, 94; 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, 1299).

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, 586), 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 Schmorl’s nodes in males and females probably indicate a specific allocation of physical labour between the sexes, and the depiction of fish on Class I stones.

From the analysis of articular osteoarthritis it could be concluded that this pathology is rather related to biological conditions such as body stature, weight and age but no reliable skeletal indicator of physical workload (Van der Merwe et al., 2006, 462; Weiss and Jurmain, 2007, 439). The low occurrence of trauma in the Rathfarnham population probably indicates a relatively peaceful life in which fractures occurred occasionally as a result of accidents and in which trepanation was practiced.

Author: Alka Katharina Daisch (best student of the MA in Archaeology, University College Dublin, year 2014-2015)
Full title of MA Thesis: An Osteoarchaeological Study of Health in the Early Medieval Population from Rathfarnham, Dublin (97E0140) - A Comparison of the Dental and Skeletal Indicators and Historical Sources

TH5-07 Abstract 12
A condition overlooked: the importance of interdisciplinary methods in investigating diet and health

Author - Nelson, Elizabeth, Mac Plank Institute for the Science of Human History, Jena, Germany (Presenting author)
Co-author(s) - Heiling, Christine, Louisiana Dept of Justice, Baton Rouge, United States of America
Co-author(s) - Dr. Bukitsa, Jane, Arizona State University, Tempe, United States of America
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 paleoethnologists have focused on estimates of the nutritional quality of diet across distinctive menus, comparatively evaluating quality of life 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 differential diagnosis 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 differential diagnostic framework 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 diagnosis. 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, Hollie, University of Leeds, Leeds, United Kingdom (Presenting author)
Keywords: Archaeology, Epidemiology, Nutrition
Preservation Preference - Oral
Food poverty in the UK is currently on the rise and evidence from reports of public health expenditure highlights both the cost of this problem to the public and the impact that poor diet can have on the social and physical aspects of people’s lives. There are many disciplines which can be used to examine the effect of food poverty on the British population, but the three involved in the research behind this paper are, nutritional epidemiology, history, and archaeology. Each of these subjects has its strengths and weaknesses but together they have attempted to understand the historical problem of food poverty which is still prevalent today.
Nutritional epidemiology is concerned with the impact of nutritional quality on a population’s health, and is often involved in providing guidelines for public health policies. Concerned only with the recent past, but more 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 times, 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 Sciences, 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 are selected. Archeological 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 (dendrochronology, 818O 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 noticed, it is possible that the preferences 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 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: paleosol, 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 Late Neolithic (north Anatolia, Samsun region), on the Black Sea coast, Titli Höyük (south east Anatolia, Ura region), Bademagac (south Anatolia, Antalya region), and Bakla Tepe (south west Anatolia, Ilem 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 the EBA, 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 Archaeology Lab of Hacettepe University, Ankara Turkey, and was conducted at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. The research is a bioarchaeological one and therefore it utilises stable isotope analyses in conjunction with osteological and archaeological evidence and research to place the dietary habits of these populations within a wider framework. For example, during the EBA in Anatolia, and especially between the early and late EBA, dramatic changes are seen in architecture, burial habits, and social and socio-political structure including the organisation of urban settlements, resources, food, labour, and trade. There is also an increased incidence of peri-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 level, and across the millennium of the EBA with the exception of C3 based. Furthermore, the results suggest that we can now begin to discuss an ‘EBA package’ with regards to foods resources.
Many archaeological studies of prehistoric domestic contexts (i.e., Mesolithic, Neolithic and Early to Middle Bronze Age) focus still on the characterisation of occupation surfaces and structures, in order to understand the function of the site and its spatial organisation. Yet, the task of identifying and studying occupation surfaces and site stratigraphy in prehistoric contexts is very challenging. For instance, Neolithic sites demonstrate large variability in their stratigraphy. Occupation surfaces are often weakly expressed, mainly characterized by the concentration and presence of artefacts, or not preserved at all, due to natural erosion or recent ploughing. In some cases, only noticeable 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-founded dwellings, pits, deep pits or schlitzgruben). Multi-layered sites, characterised by massive accumulation of earthen building materials (i.e. mudbricks), such as the Bahan 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 natural formation processes and to evaluate the state of preservation of the archaeological record - site taphonomy.

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 of different approaches to understanding 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 of different approaches to understanding 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 of different approaches to understanding 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 of different approaches to understanding building function and significance, settlement organisation, the use of interior space, and patterns of resource utilisation.
Sedimentary accumulation in a canal reflects mostly anthropogenic process (runoff intensity control, water inflows rhythm, regular cleaning) related to its function, especially in the case of an irrigation canal. Sedimentary accretion in open-air hydraulic structures is also marked by natural processes controlled by environmental conditions (hydrology, climate) at one point in time. As a result, sedimentary fills of canals provide high-resolution pedosequences for fine restitution of closely intervened 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 archives of fills (stratigraphic sequences analysis, geomorphology, micromorphology of soils, OSL dating).

Such an approach led on exceptional and well-preserved archives of fossil canals of the northern edge of the archaeological site of Sfax, which attest a proto-urban settlement during Chalcolithic and Early Bronze Age periods. The micromorphological study of Early Bronze Age canal (dated by OSL from 4.5 +/- 0.4 Ky) aims to research under polarizing microscope and identify pedological and sedimentary diagnostics 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 relating to semi-arid environment. Forward, the sequencing of these data allows a fine restitution of the operating dynamic of the hydraulic structure in the frame of environmental past conditions in its life.

**Keywords:** Dwelling, Geoarchaeology, Household activities

**Presentation Preference:** Oral

Since 2008 the University of Bologna has been carrying out archaeological researches in Solarolo, a Bronze Age village located in the southeastern part of the river Po plain, in northern Italy. The preserved stratigraphy refers to the central phase of the Italian Middle Bronze Age (about 1550-1450 BC). The presence of perishable dwellings, built with wood and earthen materials, that normally don't leave clear traces except for post holes, make the comprehension of built spaces very difficult. In northern Italy, several types of dwellings – dating back to the 2nd millennium BC - are archaeologically documented. In order to understand the nature of the buildings and their relationship with courtyard spaces, a spatial geoarchaeological sampling has been carried out in the site. A first attempt, based on soil micromorphology, is here presented: both the inside and the outside of a presumed roofed space are sampled.

The analyses focus on the local pedoclimatic markers, on the trampling traces and on the provenance and nature of different soil components. The aims of these first observations are to recognize the presence of roofed spaces, to understand the real building of the building floors and, generally, that of the dwellings; finally, they tend also to define the evolution of the building during its life.

In this way we can draw a “biography” of a single built space, useful to understand cultural architectural patterns, not always visible in the macroscopic archaeological record.

**Keywords:** Dwelling, Geoarchaeology, Household activities

**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 show a huge diversity of hearth's Histories despite morphologies apparently simple and little diversified. These hearths' micromorphology demonstrate the existence of different layouts which present traces of repetitive uses, continuous or discontinuous uses and variable intensity of use. This displays an unequal treatment of the combustion structures (in the shaping of the combustion surfaces, the maintenance regularity, in the layout quality...) suggesting various levels of reading. These certainly depend on the state and the importance of the hearth. To have a better global understanding of them, we undertake an ethnoarchaeological project of contemporary fire devices. It will permit to develop the knowledge on the functional history and on the formation processes of the infilling, according to technical techniques (shaping of the mud, application of the material...) and use of the choices (the combustion atmosphere, the heating intensity, the using continuity, the device and its use).

Fired 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 domestic 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.

**Keywords:** Firing devices, Mexico, micromorphology, Geoethnoarchaeology

**Presentation Preference:** Oral

To date, more than 600’000 artefacts and 900’000 animal bones have been recovered, mostly from infilled storage or cellar pits. Numbering more than 500, these represent the most frequent archaeological structures in the settlement. Recent interdisciplinary investigations showed that the majority of the archaeological findings are associated with dark sediments which contain plenty of inorganic and organic components such as ashes, clab and burned bone fragments as well as charred plant remains and coprolite fragments. Those dark, calcareous sediments may clearly be addressed as “occupation layers" and form a major source of material used to fill in the settlement’s pits. Geoarchaeological investigations showed that the pits were infilled in a short time in the course of just one or two distinct events. Thus the question is raised as to how and where those dark sediments were formed before they were used as backfill.

This question will be addressed by means of micromorphometric and geochemical analysis of well-preserved settlement structures like trapped loam surfaces, stone packings, shallow depressions, probable house floors, ditches and pits in order to characterize different activities and their corresponding sediments. Initial results show that there are significant differences in sediment compositions, associated anthropogenic remnants and taphonomic proxies between features. Bone fragments, for example, show clear variations in preservation apparently correlated with specific archaeological features or postdepositional processes respectively. The geoarchaeological data will be supplemented by bioarchaeological and archaeological findings to get a comprehensive idea of syn- and post depositional processes at Basel-Gasfabrik.

This will permit the reconstruction of waste disposal practices, activity areas and resource management, which is essential for interpreting assemblages like the inventory of an infilled pit. Without knowledge of how (prehistoric) communities handled their resources and their waste, of what happened with used or discarded materials, with accidentally or intentionally broken objects, with fuel and organic waste, with dung and human faeces, interpretations of archaeological features must remain mostly guesswork.

**Keywords:** Firing devices, Mexico, micromorphology, Geoethnoarchaeology

**Presentation Preference:** Oral
or by the room seen in medieval buildings serving as multi-purpose workshops. The surrounding landscape and the social context of the “workshop” might also influence its organisation.

New methods of systematic sampling of workshop floors and working areas found at archaeological excavations, together with analysis of process waste, provide a picture of the physical organization of work within “workshop”. I this way the different processes going on in a workshop can be defined in detail, as well as the physical place in which they took place. Even movements of the craftsmen between the different parts of the workshop might in some cases be visible in the workshop. charcoal, and the dragging of the smaller fractions of debris such as hammerscale, from the areas in which they originally have been deposited1. A number of examples ranging from the organisation of ore roasting and iron smelting sites in the Iron Age to medieval smithies are presented.


TH5-10 Abstract 09
Function, environment and dating of Mesolithic sites in Champagne: palaeoecological answers
Author - Granai, Salome, GeochArKlon, Vieville-sous-les-cotes, France (Presenting author)
Keywords: palaeoecology, Mesolithic, palaeoenvironment
Presentation Preference - Oral

In the past two years, in Champagne (France), palaeoecological investigations have been carried out in two sites dated from Early Mesolithic to Late Neolithic. In 2014, at Rouilly-Saint-Loup Le Champ au Loup (Aube), a first analysis of three pits has led to assess the scope of palaeoecological results in such structures. The results of this first exploratory study have prompted the pursuit of larger-scale investigations, in 2015, at Recy Le Parc de Rèlèrance (Marne), where palaeoecological assemblages of about forty structures have been analysed. The presence of abundant palaeoecological 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 palaeoecological assemblages of these two sites has enabled to reconstruct their environment and its evolutions. All the studied structures have been dug in a forest environment but the proportions of the different molluscan species vary through time. The palaeoecological successions found in Champagne are in echelon in the palaeoecological reference daters from the first part of the Holocene in the Paris Basin and its margins. In light of these reference series, some radiocarbon data from Rouilly-Saint-Loup and Recy are questioned.

TH5-10 Abstract 10
Humans and Early Holocene environment in southern Cyprus: The case of Kilmassos (PPNA)
Co-author(s) - Deviliers, Benoît, Université Paul Valéry, UMR 5140. Archeologie des sociétés Méditerranéennes, Montpellier, France
Co-author(s) - Vigne, Jean-Denis, Muséum National d’Histoire Naturelle-CNRS-UMR7209: Archéologie, Archéobotanique, Paris, France
Keywords: Cyprus, Geomorphology, Neolithic
Presentation Preference - Oral

The site of Kilmassos, in the district of Limassol in Cyprus, constitutes the most ancient human village in the island. Kilmassos was settled at approximately 8800 cal BC (PPNA). Beyond the study of the site itself, Kilmassos and its surroundings can provide much information on the palaeoenvironment and palaeoecology of the region. The position, on a slope formed by colluvium deposits and next to the furrowed terraces of the stream Athiaki, offers good conditions for a geomorphological study. The extra-site study on Kilmassos is conducted on two scales: the first concerns the slope and the site and the other the Athiaki valley. A study of a section directly related to the site provides information on the palaeoecology of the site when it was settled and the colluvium dynamics. The Athiaki valley is formed by three alluvial fill terraces cumulating 15 meters of height. The alluvial terraces recorded environmental changes and their study shed light on the climatic conditions and on the river dynamics during their formation. The radiocarbon dates of palaeosols of the two sections under study show that they have been accumulated between the Last Glacial Marine Interstadial and the beginning of the Holocene, providing a unique palaeoenvironmental record for the whole island; part of them is contemporary to the PPNA Kilmassos occupation. This study aims to understand the interaction of the Neolithic society with its surroundings and to reconstruct the palaeo-environmental and fluvial conditions in a long period.

TH5-10 Abstract 11
From water to land and back: multidisciplinary researches at Marine Cave of Bergeggi (Italy)
Author - Dr. Samia. Laura, University of Genova, Arenzano, Italy (Presenting author)
Keywords: Geomorphology, Prehistory, Submerged site and cave
Presentation Preference - Oral

In late nineteenth century, the geologist Arthur Issel first recognized the importance of the Marine Cave of Bergeggi (Bavona – Liguria, Italy), where he found a complete stratigraphy referring to Quaternary, with different stages of marine transgression and regression. The site is in fact known as the largest karst cave and the most important coastal cave of Liguria, with a submerged and an emerged part, both shaped by marine processes that occurred during different sea level changes. After these earliest researches, and during many decades, the cave has then been examined both by geologists and by anthropologists, with different aims, often not converging. While on the one hand the possibility to examine geological sea-level markers has allowed scientists to achieve information about the geological sequences of this trait of coast, and on the other hand, anthropologists and archaeologists have limited their studies to the recovery of artefacts coming from the emerged section of the site, without running proper researches. This kind of investigation has lasted until the last quarter of the 20th century, when the archaeological study of the cave has been abandoned. In recent years, a team of geomorphologists has then identified some marine and continental deposits, landforms of marine origin (i.e. marine wall grooves and L. Lithopaga bands), as well as one of the best documented marine wall groove dated to MIS 5.5 of the whole Tyrrhenian coast. In the light of these new data, and thanks to the possibility to examine the submerged section by diving directly on site, the water has then conducted, in 2014, a non-invasive archaeological survey of the whole site, including both the emerged and the submerged section. The possibility to compare the data achieved during these surveys to those obtained by geo-morphologists has then permitted to propose a sequence of human occupation of this cave during prehistory. The studies conducted by these latter, in fact, even if unfortunately limited to the emerged section, have given us the first absolute dating of the geological layers of the cave. Moreover, one of the chance to observe the effect of the sea on the general topography of the cave, as well as on the stratigraphy of the different terraces that form the emerged and the submerged section, has permitted to propose a possible diachronic development of the site, allowing us to recognize four different stages, dating from the middle Palaeolithic to the Iron Age, when the cave has been in use in different parts. All these stages have then been related to archaeological materials found during this and during earlier campaign, studied by the writer on permission of the Archaeological Museum of Florence.

TH5-10 Abstract 12
Subalpine soil memory and legacy (French Alps)
Author - Dr. Giguet-Covex, Charlène, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Develle, Anne-Lise, EDYTEM, Le Bourget du Lac, France
Co-author(s) - McGrath, Krista, University of York, York, United Kingdom
Co-author(s) - Speller, Camilla, University of York, York, United Kingdom
Co-author(s) - Poulenard, Jérôme, EDYTEM, Le Bourget du Lac, France
Co-author(s) - Mocci, Florence, Centre Camille Juliani, Aix-en-Provence, France
Co-author(s) - Walsh, Kevin, James, University of York, York, United Kingdom
Keywords: human activities, legacy, subalpine ecosystems
Presentation Preference - Oral

In the Alps, humans used the subalpine area since the Mesolithic: first used for hunting and gathering, then pastoralism suggested since the Neolithic (Giguet-Covex et al., 2014; Ponel et al., 2011; Schleder 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 (Gaeleon et al., 2012; Py et al., 2014). All these activities impacted mountain ecosystems. Some palaeoenvironmental studies also revealed long-term impacts, especially on plant communities and vegetation (Brais et al., 2012; Giguet-Covex et al., 2011; Parmo et al., 2015). However, the importance of these activities on archaeological sites. Here, we propose to apply geochemical analyses (XR, XRF, d13C, d15N…), botanical survey and environmental DNA (eDNA) analyses (PCR) on mountain archaeological soils, to track the “soil memory” and the “ecosystem memory” (i.e. the legacy).

A series of on- and off-site samples were taken from different structures (enclosures and complex of huts/cabinets) 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 pastoral pressure is very low today. Surveys carried out outside the pastoral will be used to assess the modification of plant cover linked with the use of the structure. The study of plant cover will include the analyses of plant communities and the plant biomass assessed via eDNA quantification. Moreover, spatial variations in soil geochemical signatures within and beyond the 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 activities (700 years ago) on this micro-socio-ecological systems. However, this “legacy effect” is not apparent on the Bronze Age (4200 years old) enclosure, which raise the question of the time required for the resilience. Another interesting result is the presence of lead in particular areas of the modern enclosure. These results reveal the soil memory effect link with ancient mining activity. The soil sediment and peat cores taken around the study area revealed lead concentrations 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 13

Gone with the wind: huts or tree wind-throws at Late Prehistoric open-air settlements of NW Iberia

Author - Teià-Brón, Andrés, Grupo de Estudios para a Prehistoria do NW Ibérico, Santiago de Compostela, Spain (Presenting author)

Co-author(s) - Martín-Seijo, María, Universidade de Santiago de Compostela, Santiago de Compostela, Spain

Co-author(s) - Alves, Maria Isabel Caetano, Landscape, Heritage and Territory Laboratory (LabzPT), University of Minho, Braga, Portugal

Co-author(s) - Bellencourt, Ana Maria dos Santos, Landscape, Heritage and Territory Laboratory (LabzPT), University of Minho, Braga, Portugal

Co-author(s) - Sampaio, Hugo Aitau, Landscape, Heritage and Territory Laboratory (LabzPT), University of Minho, Braga, Portugal

Keywords: domestic contexts, Late Prehistory, windthrows

Presentation Preference - Oral

Until the 80's of the 20th century, the archaeological research from Neolithic to Bronze Age in NW Iberia was focused on burial sites and rock art. Since then, several research projects and rescue excavations brought new data on housing and domestic contexts of some of the Chalcolithic and Bronze Age open-air settlements studied, together with pits, post holes, hut floors and arched hedges, excavations have been recorded oval or circular hollows measuring 1.9 to 3.5 metres wide and 1 metre of depth, usually with an irregular section. These have been considered huts remains built on perishable materials. These structures were commonly filled with two different deposits, an organic and dark brown layer, and another light and inorganic. From the organic deposits there has been recovered a high concentration of fungal sclerotia that have a symbiotic relationship with roots of trees or bushes. Finally, we would like to highlight that inside these openings are uncom-mon archaeological evidences, such as sherds or lithic artefacts.

The morphology of the hollows and the lack of archaeological evidences related to these structures, together with the repeated absence of hearths inside them or in their immediate surroundings, lead us to question their anthropic origin. For that reason, new interpretations must be proposed. In fact, in terms of sedimentological events, there is a great similarity between these structures and natural features, such as wind-thrown hollows (Dziegielewski 2007; Goldberg and Macphail 2008; Langohr 1993). The archaeobotanical assemblages recovered from these contexts, also can provide valuable information to interpret them as natural formation contexts. To understand the natural processes involved in their formation (Schiffer 1987).

There have been developed sedimentological and archaeobotanical studies of samples recovered from hollows related to tree wind-throws. Their results have been compared to the supposed anthropogenic contexts. The distinction between natural and anthropic features in these open-air settlements is crucial to avoid any interpretative distortions of these contexts.

References:


TH5-10 Abstract 14

At the Foot of the Cliff - exploring early human occupation of the inlands of southern Italy

Author - Dr. Van Leusen, Martijn, University of Groningen, Groningen, Netherlands (Presenting author)

Co-author(s) - De Neef, Wieke, University of Groningen, Groningen, Netherlands

Co-author(s) - Savink, Jan, University of Groningen, Groningen, Netherlands

Co-author(s) - Dem-Haan, Michael, ArGeTeam, University of Utrecht, Utrecht, Netherlands

Keywords: geoarchaeological prospection, methodology, pre- and protohistoric archaeology

Presentation Preference - Oral

In mountainous landscapes with strong landscape taphonomic processes going on for long periods, detecting and assessing the evidence for prehistoric occupation can be very difficult. In this paper, the authors, from the Universities of Groningen and Amsterdam (Netherlands), highlight occupation remains in a landscape context which is hard to investigate, but which also provides unique site preservation conditions: namely, debris slopes at the foot of steep limestone rock faces.

We present recently obtained results from the Rural Life in Prehistoric Italy project, which aims to develop improved approaches for the detection and study of ephemeral pre- and protohistoric remains in Mediterranean environments. The earliest settlement remains recorded in the basin of the Raggero 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 dark, fine-grained deposits containing fragments of pottery, bone and charcoal interspersed with small rock fragments which are difficult to detect in archaeological surface surveys due to the remoteness, extreme relief, ongoing deposition processes, and adverse vegetation. However, our multidisciplinary investigations (including soil studies, geoarchaeological prospection and high-resolution archaeological studies) show that such sites contain surprisingly well-preserved remains, including a wealth of environmental data on early subsistence strategies.

The paper focuses on these debris slope sites. Site RB12ta was initially exposed by quarrying activities, revealing deposits with pottery, bone, and charcoal, a surface survey of the wider area revealed several more protohistoric artefact scatters and at least two more ‘black earth’ deposits within the debris slope below the Timpa Sant’Angelo limestone cliff, indicating long-term use from the Middle Neolithic to Bronze Age. The second site, RB15bs, is located in a similar South-facing debris slope, but is exposed by the incising gully of a seasonal stream; the archaeological stratigraphy in the gully section revealed deposits and materials from the Late Neolithic to Iron Age. At the third site, RB13oa, 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 geoscientific investigation was to trace anthropogenic criteria, if there were any. Multivariate statistics were performed for 20 variables including element chemically relevant criteria between different data sets are based on multivariate statistical analyses adopted to specific natural settings on metamorphic rocks.

With the next step, the geochronological dating with a RbSr, 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 geochronologically 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-intensity 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 isolated data, but its multiplied product.

(Further co-authors: Matej Dolinec, Nina Zupančič, Manca Vinaiza, Igor Medarič, Matjaž Mori, Petra Basar)

TH5-10 Abstract 19
Microbiological and environmental biomineralization in the Neolithic hypogaeum Hali Safieni, Malta

Author - Marsetti, Diego, Ecogeo srl, Bergamo, Italy (Presenting author)

Co-author(s) - Caruana, Joseph, Heritage Malta, La Valletta, Malta
Co-author(s) - Marosio, Livio, Ecogeo srl, Bergamo, Italy
Co-author(s) - Zammit, MariàDiena, Heritage Malta, La Valetta, Malta
Co-author(s) - Pagono, Alberto, Ecogeo srl, Bergamo, Italy
Co-author(s) - Perigo, Renata, CNR IDPA, Milano, Italy
Co-author(s) - Ravazzi, Cesare, CNR IDPA, Milano, Italy
Co-author(s) - Rossi, Laura, Ecogeo srl, Bergamo, Italy
Co-author(s) - Valenti, Franco, CNR IDPA, Milano, Italy

Keywords: Bio-degradation, Biomobilization, GeoBiology

Presentation Preference - Poster

Work carried out within the tender HM22/3/2015 committed by Heritage Malta to Ecogeo srl di Bergamo, Italy and Joseph Cachia & Son Limited, Malta.

The phenomenon of the megalithic architecture developed in the Maltese Islands during the Neolithic between 3500 and 2500 BC yielded some of the oldest free-standing megalithic structures anywhere in the world.

The Ħaġar Qim and Mnajdra Megalithic Temples are the earliest structural developments of the megalithic tradition, recognizable already by the end of the 5th millennium BC. This phase is dated from 5500 to 3000 BC.

The phenomenon of the megalithic architecture developed in the Maltese Islands during the Neolithic between 3500 and 2500 BC yielded some of the oldest free-standing megalithic structures anywhere in the world.

The Ħaġar Qim and Mnajdra Megalithic Temples are the earliest structural developments of the megalithic tradition, recognizable already by the end of the 5th millennium BC. This phase is dated from 5500 to 3000 BC.

The phenomenon of the megalithic architecture developed in the Maltese Islands during the Neolithic between 3500 and 2500 BC yielded some of the oldest free-standing megalithic structures anywhere in the world.

The Ħaġar Qim and Mnajdra Megalithic Temples are the earliest structural developments of the megalithic tradition, recognizable already by the end of the 5th millennium BC. This phase is dated from 5500 to 3000 BC.

The phenomenon of the megalithic architecture developed in the Maltese Islands during the Neolithic between 3500 and 2500 BC yielded some of the oldest free-standing megalithic structures anywhere in the world.

The Ħaġar Qim and Mnajdra Megalithic Temples are the earliest structural developments of the megalithic tradition, recognizable already by the end of the 5th millennium BC. This phase is dated from 5500 to 3000 BC.

The phenomenon of the megalithic architecture developed in the Maltese Islands during the Neolithic between 3500 and 2500 BC yielded some of the oldest free-standing megalithic structures anywhere in the world.

The Ħaġar Qim and Mnajdra Megalithic Temples are the earliest structural developments of the megalithic tradition, recognizable already by the end of the 5th millennium BC. This phase is dated from 5500 to 3000 BC.

The phenomenon of the megalithic architecture developed in the Maltese Islands during the Neolithic between 3500 and 2500 BC yielded some of the oldest free-standing megalithic structures anywhere in the world.

The Ħaġar Qim and Mnajdra Megalithic Temples are the earliest structural developments of the megalithic tradition, recognizable already by the end of the 5th millennium BC. This phase is dated from 5500 to 3000 BC.
Through electrical tomography, the rock surface was indirectly explored to a depth of 10 cm to identify any subsurface alterations. An experimental survey of UV fluorescence of some rock surfaces provided further information on biomineralization and revealed ochre designs which had been obscured by recent and old incrustations and biomineralization. Finally, the surface distribution of biomineralization, biofilm and cuticle types was mapped.

TH5-10 Abstract 20

Housebuilding adaptation to the environment in the Neolithic of the south of Western Siberia

Author: Dr. Ryabogina, Natalia, Institute of the problems of Northern development, SB RAS, Tyumen, Russian Federation (Presenting author)

Keywords: Environment, Housebuilding, Neolithic, Western Siberia

Presentation Preference - Poster

Natural capabilities and intellectual basis (set of skills and knowledge) of people at a particular time inseparably connected and could be considered as an adaptive resource of ancient groups.

Within this approach we have analyzed the archaeological materials of excavations of the Neolithic settlements on the Mergen’ lake, which have been carried out for several years in the forest-steppe of Western Siberia. We focused on the details to illustrate the adaptation techniques of housebuilding to the environment in the mid-Holocene. On the geoarchaeological data, supplemented palynological and phototests on-site data, we reconstructed significantly different landscape around the settlement in the Early Neolithic (6-5 thousand BC), than today’s. Continuously-inhabited settlement was located directly at the lakeshore and surrounded by open steppe landscapes, almost treeless. The climate was drier, although episodes of extreme flooding are also marked by stratigraphic and palynological data. Apparently later in the Chalcolithic (3 thousand BC) on this site were only seasonal constructions, but other constant settlements have been found on elevated terraces. Forest-steppe landscapes with birch forests were widespread at that time there.

The dwellings on the Neolithic stages was classified on preserved traces of ground constructions, organic materials and archaeological finds, we made a graphic reconstruction of the external appearance of buildings and analyzed the dynamics of housebuilding tradition. We compared the archaeological and palaeoecological data and focus on the structural features of the house and灿-cum-dugouts (6 light underground houses), accessibility of natural materials for the construction, episodes of backfill trianling floor, the internal structure of living quarters, the specifics of the heating, ventilation and drainage systems, anthropogenic pressure on the vegetation around the settlement. An important addition was a trasological study of the function of stone and bone implements using for building. The revealed facts indicate a high degree of adaptability of ancient settlers allowing to exploit for a long time the compact ecological niche near the lake.

TH5-10 Abstract 21

Geoarchaeology of Caspian settlements in eastern Maghreb: spatial organisation of outside areas

Author - Edtargach, Wassel, Maison Archéologie & Ethnologie, René-Ginouviès, Nanterre, France (Presenting author)
Co-author(s) - Wattez, Julia, INRAP, Paris, France
Co-author(s) - Petri, Christopher, Université de Paris 1 Panthéon-Sorbonne, Paris, France

Keywords: Caspian settlements, Geoarchaeology, the eastern Maghreb

Presentation Preference - Poster

The geoarchaeological research on Caspian settlements in the eastern Maghreb region is based on soil micromorphology. This research is important to understand the systems of settings of these nomadic and/or sedentary populations, by the characterization of the sedimentary records related to activities and their organisation. The micromorphological analysis reveals complex occupation dynamics, dominated by anthropogenic processes interacting with natural processes. Occupation surfaces show a great variability of sedimentary micro-facies according to the nature of activities, their spatial localisation, the climatic conditions and the frequency 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: Doukanet El Houllia (Biliana-Tunisia) Kef Elizah (Kairouan-Tunisia), El Mekt (Gafsa-Tunisia) and SHM-1 (Hergla-Tunisia).

TH5-10 Abstract 22

Infering the Neolithic pits function from sedimentary record: the case of Le Pirou (France)

Author - Dr. Wattaz, Julia, INRAP, Paris, France (Presenting author)
Co-author(s) - Gandelin, Muriel, INRAP, Paris, France

Keywords: circular pits, Micromorphology, Neolithic

Presentation Preference - Poster

Middle Neolithic settlement on south of France are often characterised by negative features and by the lack of occupation surfaces, mainly due to post-depositional erosion.

Pit clusters are usually dwelling evidence, such as in the site “Le Pirou”. About one hundred circular pits are arranged around an empty space, which its nature stays unknown. Some of these features are identified as human or animal burials but for the most of them, the primary function is under discussion: dumps because of the cultural remains diversity (potsherds, lithic, charcoal, animal bones), or storage structure due to the shape of the pits section. The pits’ 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 sampled. Radiocarbon dating (4261 to 4174 cal BC), place these pits to Early Chassean Culture.

Geoarchaeological results indicate that the circular pits correspond to a constructed space, with activity surfaces regularly maintained and transformed by trampling. Correlation between stratigraphic and archaeological record allows us to propose a new interpretation on the functions of the pits (domestic/craft activity areas, cellar-storage) which will be presented and discussed in this paper.

TH5-10 Abstract 23

Micromorphology of combustions structures at Birnik and Thule sites of the Cape Espenberg site

Author - PhD student Variandeghime, Marine, UMR 7041 ArScan, Equipe “Archéologies environnementales”, Nanterre, France
Co-author(s) - Wattaz, Julia, Centre Archéologique de La Courneuve INRAP, La Courneuve, France (Presenting author)
Co-author(s) - Alix, Claire, UMR 8096 Archéologie des Amériques, Université de Paris 1 Panthéon-Sorbonne, Nanterre, France
Co-author(s) - Elliott, Michelle, UMR 7041 Archéologie des Sciences de l’Antiquité, Université de Paris 1 Panthéon, Nanterre, France
Co-author(s) - Pratt, Christopher, UMR 7041 Archéologie des Sciences de l’Antiquité, Université de Paris 1 Panthéon, Nanterre, France

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 (architectures, hearths, middens) within a series of aggrading beach ridges. Remains of semi-subsurface rural houses and associated material culture indicate the sites relate to the Birnirk and the Thule cultures. The houses associated with the Birnirk culture are in ridge E-6 and reveal a multi-room architecture and two to three occupation levels dated to the 11th-13th century. Thule and later Kotzebue period houses are found on ridge E-5 and E-4. They show a long entrance tunnel leading to a rectangular room that contains a sleeping platform elevated above the occupation level. Unusual concentrations of archaeological charcoal and burned organic matter have been uncovered inside and outside of Birnirk houses, revealing the presence of small domestic hearths inside and firespits outside. However, Thule culture houses only have external burned areas and firepits. Ceramic lamps appear to be the sole source of light and hearth inside these houses.

The variability in the form, fill, and spatial organization of combustion structures raises questions regarding their usage, status and maintenance by people who occupied these houses. To further understand fire management in the arctic tundra, and the function and status of combustion structures, soil samples were collected from combustion structures (hearthfs, firepits, charcoal’s concentration and soil occupation, ... for anthracological and micromorphological analysis. This sampling protocol provides the opportunity for a multivariate, comparative and diachronic analysis of combustion structures between one Birnirk house and three Thule houses at Cape Espenberg. Our goal is to identify the diversity of fire-related activities in the excavated Birnirk and Thule houses, whether domestic (cooking, boiling water, heating, lighting, etc.) or specialized (ceramic firing, smoking and / or drying of foods, etc.). In this poster we present results of the soil micromorphology analysis and compare the areas sampled in terms of function and spatial organization in light of prior results of charcoal analyses.
TH5-11

“GNU DIRECTIONS IN R CHAEOLOGY”: INNOVATIONS IN THE USE OF FREE AND OPEN SOURCE SOFTWARE (FOSS) TO ACHIEVE AN OPEN ARCHAEOLOGY

Friday, 2 September 2016, 09:00-11:00
Faculty of History, Room 329
Author - Oron, David, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Botica, Natalia, Universidade do Minho, Braga, Portugal (Presenting author)
Co-author(s) - Botica, Natalia, Universidade do Minho, Braga, Portugal
Co-author(s) - Abele, Joaquim, Universidade de Aveiro, Aveiro, Portugal
Co-author(s) - Madeira, Joaquim, Universidade de Aveiro, Aveiro, Portugal
Keywords: 3D models, Information System, open-source software
Presentation Preference - Oral

In recent years, considerable attention has been paid by archaeologists to the potential of an ‘open science’ approach within archaeology, focusing firstly upon open access publication, and more recently on the imperative for open data. Papers in this session address the third pillar of open science within archaeology: open methods, as underpinned by the use of Free and OpenSource Software (FOSS). The benefits of FOSS in archaeology are manifold, ranging from inclusivity, through transparency and research integrity, to practical issues such as cross-compatibility. Closed-source proprietary software has created a two-tier system, selectively disadvantaging individuals and institutions with more limited resources while hindering the free exchange of data, obfuscating methodological detail, and increasing the risk of digital obsolescence. By contrast, FOSS allows for universal access and encourages reproducibility and compatibility of research methods, while facilitating collaboration, archiving, and data re-use. The range of FOSS applications in archaeology has grown significantly in the last decade, expanding from traditional heartlands in GIS and spatial analysis into omics, bioarchaeology, and field recording, to name but a few. This session aims to draw attention to innovative ways in which archaeologists are applying the open source philosophy. Contributors will present cases in which the use of open software is instrumental in achieving objectives - whether in terms of expanding access to archaeology; developing reproducible methods; or enabling otherwise impractical research and collaborations. We also welcome papers discussing innovative packages with the potential to facilitate such contributions. By raising awareness about the uses of FOSS in archaeology, we hope to promote the Freedom of Software movement within archaeological practice and to demonstrate how the discipline is developing towards a more democratic and egalitarian approach to information technology.

TH5-11 Abstract 01

Digital media as an effective platform to archaeological data dissemination

Author - Eng. Botica, Natalia, Universidade do Minho, Braga, Portugal (Presenting author)
Co-author(s) - Bernardes, Paulo, Universidade do Minho, Braga, Portugal
Co-author(s) - Martins, Manuela, Universidade do Minho, Braga, Portugal
Co-author(s) - Madeira, Joaquim, Universidade de Aveiro, Aveiro, Portugal
Keywords: 3D models, Information System, open-source software
Presentation Preference - Oral

The Unit of Archaeology of the University of Minho (UAUM) start to be concerned about digital preserving of the archaeological data in the nineties, due to the large amount of records (both graphic and alphanumeric) mainly gathered during the rescue excavations carried out in the city of Braga since 1976. In order to facilitate the management and preservation after 1994 all the archaeological records start to be regularly digitized and stored in an Oracle DB. Later in 2000, as part of UAUM’s information system strategy, these data were migrated to a MySQL database. Simultaneously, to ensure a continuous update and management of the data, a web-based back-office was developed using HTML and PHP. This technological independence enabled a control 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 ArchÉD and ARCgis enabling the automatic creation of a graph regarding the stratigraphic mains 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. Oron, 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 toolkit 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–Cószechalom

Author - Dr. Csisgár, Péter, Eötvös Loránd University of Sciences, Budapest, Hungary (Presenting author)
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 requires new technologies and methods in the research.

The main question is, how can we interpretting 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 (9th millennium BC) settlement of Polgár-Cószechalom is a perfect case study for the archaeological adaptation of one of the widely applied opensource statistical software: R.

Through the wildrange analysis of animal bones I focused on the meat consumption of the main domestic species at the site, the cattle. But the question is, how can we earn more information about these animals with using only a FOSS to the research? R offers numerous possibilities and ways for the data analysis and visualisation, but in this case study I would like to show the whole process from the birth of the research question until the answers with the help of R.
**TH5-11 Abstract 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)
- Sparrow, Thomas, University of Bradford, Bradford, United Kingdom
- Donahue, Randolph, University of Bradford, Bradford, United Kingdom
- Wilson, Andrew, University of Bradford, Bradford, United Kingdom
- Ashton, Nick, British Museum, London, United Kingdom
- Parfitt, Simon, University College London, London, United Kingdom
- Roberts, Mark, University College London, London, United Kingdom

**Keywords:** Automated refitting, B mogre, open source software

**Presentation Preference:** Oral

Refit analysis is a powerful tool that can be used to address questions regarding taphonomy and assemblage formation processes, technology and spatial organisation. However, it is a method constrained by a reliance on human experts and time, and is further limited by factors such as assemblage size, raw material characteristics and technology. The time required to conduct refit analysis increases exponentially with assemblage size, while success rates decrease. Further, errors in refitting remain untested, although inter- analyst variability in terms of experience and skill is clearly an important factor. A refit study can rarely be considered as complete, which can create uncertainty over the extent to which past human behaviour re-constructed through refitting is representative of the full suite of behaviours represented at a site. The ‘Fragmented Heritage’ project is addressing this situation through the development of a new digital method for refitting that draws on techniques from the field of optical metrology and utilises open source software.

Rapid, medium scale (millimetre to micrometre) high precision 3d scanning is used to produce digital models of fragmentary archaeological remains. These models are then processed using open source software and a set of published data manipulation algorithms that dissect and compare surfaces within a given assemblage of material. This outputs probability matrices from which refitting surfaces can be derived. This effectively automates the refitting process and affords the researcher more time to evaluate the significance of the resulting patterns of material organisation at the analysed sites. Further development of this method has the potential to dramatically increase the scope of refitting studies. By substantially reducing the required person-hours to conduct a refit study whilst increasing reliability, the method could be applied to large, complex, palimpsest assemblages in their entirety, and even be used to search for refitting material between assemblages, thereby providing a method for directly linking episodes of human activity across the landscape.

This paper presents a case study of part of the GTP17 assemblage (the Horse Butchery Site) from the Lower Palaeolithic site of B mogre, UK, to demonstrate the new digital method of refitting, discusses how the system might be further developed and explores its potential for improving understanding of past societies.

**Acknowledgements:** This research is part of the Fragmented Heritage project funded by the Arts and Humanities Research Council (AH/L00688X/1).
TH5-12 Abstract 02
Methodology and perspectives. Use of metal detectors in the Little Poland region

Author - MA Bulas, Jan, Jagiellonian University, Kraków, Poland (Presenting author)
Keywords: Iron Age, Little Poland Upland, metal detector
Presentation Preference - Oral

In Poland, as in most European countries there is an ongoing debate about the risks associated with the use of metal detectors by treasure hunters while illegal surveys. This topic largely overshadowed subject of methodological use of metal detectors during archaeological excavations, and during field-walking surveys. The discussion within the scientific community, which was also held in Poland, mainly in the 90s and in the first decade of the twenty-first century, above all was limited to a debate whether the use of metal detectors in general should be allowed during scientific research or not. The subject of methodological application of this tool was virtually ignored.

The aim of the paper is to present a reflection on the advantages associated with the use of metal detectors during archaeological excavations and field surveys in characteristic hilly terrain of the Little Poland Upland. This reflection will be based on the experience of the last decade of research in the area, primarily on the various Iron Age sites. The presentation will address the issue of the relationship between topography, geological and archaeological stratigraphy of individual sites and the results of a metal detector prospection. Research at several archaeological sites allowed to statistically verify what percentage of the finds is located in layers intact by agricultural work, and how much of them lies in the top soil. The presented study will therefore provide an example of a case study associated with a specific geographical area and sites dating back mostly to the Iron Age.

TH5-12 Abstract 03
Strategies of Detectoring Research in Mountain Areas of Slovakia

Author - Dr. Horňak, Milan, VIA MAGNA s.r.o., Veľký, Slovakia (Presenting author)
Co-author(s) - Dr. Mgr. Kvietok, Martin, Central Slovakia Museum Banska Bystrica, Banska Bystrica, Slovakia
Keywords: Detectoring, mountain areas, Slovakia
Presentation Preference - Oral

The hillfort is a typical settlement unit for mountain areas of Slovakia for a long period of time from the late Bronze Age until developed Middle Ages (12th - 13th century). A typical aspect of hillfort is in addition to building of fortification also treatment of landscape of its close economic background into a system of terraces, on which economic, agricultural and settlement activity concentrated.

We currently know about several hundreds of prehistoric or medieval hillforts with various settlement intensity in this landscape.

Other objects typical for mountain areas are various types of communications from service roads up to roads of trans-regional nature. There is a vast number of archaeological findings situated along such roads, which enable us to date the period of road usage as well as nature of goods transported on such roads or types of travellers using them.

Last but not least, mountain areas of Slovakia are rich in numerous relics of old mining activity, ranging from simple exploratory shafts through large extraction and processing areas up to abandoned mining villages. Material obtained from them enables us to learn about contents of material culture of mining communities from the oldest time to modern period.

Intensive and unregulated mass 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 irrevocable damage to learning about the national cultural heritage (absence of information about the finding site or about particular circumstances of the finding), it has also brought vast amount of information about the material culture of prehistoric and historic communities living in this area, even though such information has various informative value. Mass detecting has also brought discoveries of numerous new localities, which are exposed to biggest risks without the immediate response by archaeologists.

We think that the number of objects affected by mass detecting, archaeologists must face the question of how to effectively approach the detecting reconnaissance of said types of archaeological localities so as to be “step ahead” of illegal robbers.

Our paper presents strategies of detecting research in mountain areas of Slovakia based on research of recent years.

TH5-12 Abstract 04
The hilltop settlement Gradščе above Bašelj: metal detecting survey vs. archaeological research

Author - Krištof, Timoň, Narodni muzej Slovenia, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Knific, Timoň, Narodni muzej Slovenia, Ljubljana, Slovenia
Keywords: archaeological research, Gradščе above Bašelj, Slovenia, metal detecting survey
Presentation Preference - Oral

Gradščе, 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 Gradščе, were unearthed in 1908, 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 1999, a team of archaeologists from the National Museum of Slovenia conducted a revision excavation, which confirmed existence of the settlement from the 5th–6th century and uncovered another layer with numerous iron objects and ceramic fragments, from the period between the end of the 8th century and the mid 10th century.

In the recent years, a lidar scanning and a geophysical research of the site and its surroundings were carried out, confirming numerous built structures inside the settlement. One of these, a tower built outside the defence wall was excavated in 2015. The new discoveries of the architectural remains, therefore, offer a great opportunity to compare the settlement’s structure with a distribution of small metal finds, recorded during the previous topographical surveys. Moreover, the presentation also gives a short overview on the national legislation regarding the search for archaeological remains and use of technical means for this purpose.
TH5-13 Abstract 01

Environmental conditions and Mesolithic-Early Neolithic sites in the basin of Vozhe Lake (Russia)

Author - Dr. Kosorukova, Natalia, Chernepowets State University, Chernepowets, Volgodon region, Russian Federation
Co-author(s) - Kukleva, Mariamna, Herzen State University, St.Petersburg, Russian Federation (Presenting author)
Keywords: Mesolithic sites, Early Neolithic sites, Palaeoenviroment, environment of Holocene, pit-bog settlements, Vozhe Lake
Presentation Preference - Oral

The pit-bog sites are located in the basin of Vozhe Lake in the Volgodon region of Russia. The Pogostite15 site is dated to middle Mesolithic period, but the Karavakh 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, and remains of wood fishing constructions were excavated. The application of geochemical, pollen and radiocarbon methods gave the possibility to reconstruct the paleoenvironment and to clarify the chronology of sites. Understading the scale in these changing environments is crucial in determining the impact of these on archaeological sites, regional and site-specific, as well as global levels.

In recent years new developments in the field of environmental archaeology including the advancement of biomolecular techniques, have enabled palaeoenvironmental changes to be characterised on a range of scales, from analysis of individual animals, and archaeological sites, to regional reconstructions. Using holistic and multi-evidential approaches it is possible to achieve a more comprehensive understanding of palaeoenvironmental and palaeoclimatic changes within archaeological sites and their surrounding landscapes.

This session seeks to explore new micro- and macro- scale approaches towards reconstructing palaeoenvironments, palaeoclimates, and palaeoecologies to answer key questions related to the impact of palaeoenvironmental and palaeoclimatic changes on past human and animal populations.

TH5-13 Abstract 02

Baltic Sea Lithuanian coastline changes in Mesolithic: landscape and peoples subsistence economy

Author - Prof. Žulkus, Vladas, Klaipeda University, Klaipeda, Lithuania
Co-author(s) - Prof. Griniavas, Algirdas, Klaipeda University, Klaipeda, Lithuania (Presenting author)
Keywords: Mesolithic inhabitants, Palaeo-environmental situation, the submerged prehistory
Presentation Preference - Oral

The submerged prehistory of the eastern Baltic has attracted great archaeological, geological, pollen, macrofossil, diatom, radiocarbon analysis the last years. The exploration was concentrated in order to localize the former Yoldia Sea and Ancylus Lake coasts, their seashore underwater landscape reconstruction (coastal vegetation, relics of composition, their age, pollen, diatom analysis) and their potential settlement development in Lithuania waters. Studies in 2014-2015 revealed northern part of the Curonian plateau (underwater peninsula) sea bottom formation and cost lines in the 15-30 m depths. Yoldia Sea and Ancylus Lake shores subaqueous landscape studies were compared with the data from the Bamogian Highland (West Lithuania) ongoing pollen, diatom and archaeological investigations, which showed that in the Mesolithic period of human living and farming conditions were different. Palaeo-environmental situation plays a leading role in the reconstruction of the human settling during the Early Holocene in coastal and continental area of Lithuania. Relict submerged forest vegetation composition remains confirms that the natural conditions at the time of former Baltic coastal water basin were favorable to live and succeed in farming for Early Mesolithic Kunda (Pulli) and Maglemose cultural communities. The tested area was favorable place for human settlement which included coastal fauna, coastal migratory birds and marine resource, seals especially in the Late Pre-Boreal and Early Boreal. Yoldia Sea and Ancylus Lake shore zone examined small lake surroundings could have been settled by Mesolithic inhabitants. In the first case – Early Mesolithic Kunda culture (Pulli stage), and second – Maglemose settlers.
The influence of past climate change on hunter-fisher-gatherer societies is a highly debated topic during recent years. The increasing interest in human-environmental interactions has resulted in development of more accurate methods and techniques for paleoenvironmental reconstruction. Thus, molusc shells from archaeological sites can provide information on past climatic and environmental conditions, as well as human subsistence practices. Seawater temperatures (ST) can be reconstructed using geochemical techniques such as the analysis of stable oxygen isotope ratios on marine mollusc shells. In this paper we aim to reconstruct the evolution of ST in northern Iberia (Spain) from ~50 to 1 ka BP using oxygen isotope ratios obtained from the limpet Patella vulgata (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. This new record also shows a correlation between P. vulgata estimated ST and data from the Greenland NGRIP ice core and from deep-sea sediment core MD95-2042 (located off western Iberia), suggesting that ST in northern Iberia followed a global pattern.

TH5-13 Abstract 05
Mammalian response to climatic instability over the Pleistocene-Holocene boundary in Britain

Author - Mann, Melissa, Natural History Museum London, London, United Kingdom (Presenting author)
Co-author(s) - Barnes, Ian, Natural History Museum London, London, United Kingdom
Co-author(s) - MacLeod, Norman, Natural History Museum London, London, United Kingdom
Co-author(s) - Schreve, Danielle, Royal Holloway University of London, Egham, United Kingdom
Keywords: 3D Geometric Morphometrics, Ancient DNA, Palaeoclimate
Presentation Preference - Oral

The closing stages of the Devensian glacial through to the Holocene interglacial (c. 15 000 cal BP – 11 500 cal BP) saw a series of rapid oscillations in global climate associated with major turnover events in both 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 living in the UK during this period associated with large-scale changes in human populations, culture and technology. This study applies a novel synthesis of ancient DNA and 3D geometric morphometrics to sub-fossil material recovered from the British zoo-archaeological record in order to investigate the tempo, scale and mode of mammalian response to this rapidly changing climate.

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, acted as a refugium during interglacial events in the north. Regional level population instability and eco-morphological change over the terminal Pleistocene has been explored in a number of mammal species: a micromammal (common vole, Microtus arvalis), a woodland specialist (Eurasian beaver, castor fiber), a carnivore (wildcat, Felis silvestris) and a large grazer (wild horse, Equus ferus).

The multi-proxy methodology applied here allows key questions relating to both population patterns and processes and morphological plasticity/stasis to be explored. Ancient DNA analyses included traditional Sanger sequencing and Next-Generation Sequencing (NGS) technologies to create both single-genome mitochondrial and genome-wide Single Nucleotide Polymorphism (SNP) datasets while morphological analyses applied 2D digital imaging and 3D micro computed tomography (microCT) to sub-fossil bones and teeth. This represents one of the first studies to combine these techniques and apply them to mammal material of this age. The relative merits of these approaches, along with the results of this study, will be discussed.

TH5-13 Abstract 06
Isotopic evidence of environmental change during the Palaeolithic in the Cantabrian Region, N. Spain

Author - Dr. Jones, Jennifer Rose, Universidad de Cantabria, Santander, Spain (Presenting author)
Co-author(s) - Marin Arroyo, 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 region Northern Spain was an archaeologically important region throughout the Middle and Upper Palaeolithic, and was home to some of the last surviving Neanderthals in Europe, and during the Last Glacial Maximum the region acted as a refugium for plants, animals and humans. Changes in the environment are thought to have been driving factors behind the extinction of the Neanderthals, the rise of Anatomically Modern Humans (AMHs), and later the development of the rich cave art assemblages.Carbon and nitrogen stable isotope analysis of hunted animal bone collagen from Palaeolithic levels of archaeological sites can be used to understand past environments at this time. Changes in the environment including factors such as temperature, aridity produce different isotopic signatures within plants, and the animals that consume them, and analysis of these specimens on a large scale. This research uses large scale isotope 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.
with strontium isotope analysis) is commonly used to infer childhood geographical origin. However, given that dental tissues form incrementally, and only capture isotopic inputs from a fixed period (i.e. during their formation), their analysis only offers short-term records that (depending on sampling strategy) can encapsulate seasonal biases. The oxygen isotope analysis of other skeletal tissues and fractions, such as bone collagen or bone phosphate, offer the potential to provide evidence of longer-term mean oxygen isotope values 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 cultural 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 isotope in skeletal remains is necessitated.

Here, we present oxygen isotope data (818O) generated from multiple tissues deriving from the same archaeological individuals from Medieval and Post-Medieval British sites with the aim of exploring inter-tissue/inter-fraction variation as well as geographical and temporal variability. Individuals were selected from different geographical locations (Yorkshire, London) representing both rural and urban populations. Oxygen isotope values were determined in bone and tooth phosphate (818O), tooth carbonate (818O), and in bone collagen (818Ocolo). 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:** Zavodov, Emily, The Pennsylvania State University, University Park, United States of America (Presenting author)

*Co-author(s):* Cullen, Brendan J., The Pennsylvania State University, University Park, United States of America

*Co-author(s):* McClure, Sarah B., The Pennsylvania State University, University Park, United States of America

*Co-author(s):* Kennett, Douglas J., The Pennsylvania State University, University Park, United States of America

*Co-author(s):* Podrug, Emil, The Pennsylvania State University, University Park, United States of America

*Co-author(s):* Baen, Jacqueline, Arhеodolit 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 geographical variation in management development, spread, and ultimate divergence in strategy.

---

**TH5-13 Abstract 10**

**Changing cultures, changing environments**

**Author:** Prit, Jacqueline, Bournemouth University, Bournemouth, United Kingdom (Presenting author)

**Keywords:** Human-animal interactions, Palaeoecology, Zooarchaeology

**Presentation Preference:** Oral

Climate and environment are critical factors for the survival of every living species. Animals and plants are not only conditioned by, but also change their environments. The interaction between different species and their environments changes over time and as such can be very informative, but identifying this complex relationship in the archaeological record is challenging.

The domestic chicken presents an interesting case study. Introduced into Europe during the Iron Age as a non-native species, its novel presence necessarily 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 evidence at site level from the period prior to the introduction of the chicken up until the end of the Roman Empire enables us to better understand how change in climate and attitudes over time have been influenced by, and shaped, the environment within which these communities existed.

---

**TH5-13 Abstract 11**

**Revisiting the impacts of coastal sand movement in prehistoric Scottish Islands**

**Author:** Gai, Emily, University of St Andrews, St Andrews, United Kingdom (Presenting author)

**Keywords:** aeolian sand, geoaechology, Scottish islands

**Presentation Preference:** Oral

Islands and their coastlines have long been important landscapes for settlement, resource procurement and structuring social interaction. Such environments have also proven fruitful in exploring environmental change and its impacts on human activity. Coasts are by their nature dynamic and locally-variable. Manifestations of environmental change such as flooding, erosion and sand movement can have immediate and visible impacts on coastal activities and geomorphology. Historical sources provide a detailed view of environmental deterioration and its far-reaching effects on coastal populations throughout Britain, particularly during the Little Ice Age. One notable impact is that of coastal sand movement and inundation, leading to the marginalisation and abandonment of agricultural land in response.

The presence of blown sand horizons at coastal archaeological sites attests to similar movements in the prehistoric period across northwest Europe. However, the nature of impact and response in the prehistoric record is less clear, with environmental proxies often proving ill-defined. Prehistoric archaeologists face the challenge of reconciling temporal scales provided by the environmental sciences with scales that are archaeologically-meaningful to explore similar human-environment relationships at deeper timescales. This paper will introduce a doctoral research project which aims to catalogue and characterise episodes of coastal sand movement in the prehistoric period using the Northern and Western Isles of Scotland as a case region. A mixed-methods approach has been taken to this research, combining archaeological evidence with geoaechology and historical analogy. The project also utilises geophysical survey and luminescence dating to investigate the nature, source and chronology of sand movement on archaeological sites and landscapes. This will then be placed within the wider socio-cultural context of a region where suggested ‘buffering’ responses such as mobility and diversification can be reviewed. Selected multi-period sites in Orkney and the Outer Hebrides are being used to explore the ways in which this complex archaeological and environmental record can be approached.

---

**TH5-13 Abstract 12**

**Anthropogenic impact on the changes in landscape in the tract “Adzhiel” in the Eastern Crimea**

**Author:** PhD Smeakin, Sergey, Tula State Lew Tolstoy Pedagogical University, Saint-Petersburg, Russian Federation (Presenting author)

*Co-author(s):* Zubarev, V.G, Tula State Lew Tolstoy Pedagogical University, Tula, Russian Federation

*Co-author(s):* Yartzov, S.V., Tula State Lew Tolstoy Pedagogical University, Tula, Russian Federation

**Keywords:** antiquity, Crimea, landscape

**Presentation Preference:** Poster

The connection between location of ancient settlements with the conditions of the environment and agricultural potential is obvious. It is equally obvious, the dependence of the choice of location for the settlement with the landscape. In this connection, great interest is the analysis of the historical situation in a particular area in the presence on it of one or more dominant objects of human impact on the environment. In our case, that is the territory of the tract Adzhiel. The tract occupies part of the territory of the Eastern Crimea adjacent to the Sea of Azov, is located 45 kilometers west of the eastern point of Crimea, and covers an area of about 40 km.². The name of this area connected with Adzhel gulf, located here. As a result of studies of the XX century, there are discovered many barrows and more than a dozen ancient archaeological sites of other types. For detection the relationship has been taken to this research, combining archaeological evidence with geoarchaeology and historical analogy. The project the problems of the identified objects of natural-geographical and landscape features of the tract. GIS has been prepared, including layers, describing the soil properties, topography and hydrology of the area. On a large part of Tracts Adzhiel, with modern agriculture field, there are no traces of settlement structures, that says, that in ancient times these territories were not built up, but could also be used for agriculture. Settlement structures are located primarily along the boundaries of the modern fields, in areas with less fertile soils. The territories occupied by modern fields as underlying cultural layers in the middle and lower Pliceo rocks - sand, clay, iron ore, shelly limstone; rocks of Meota tier of Upper Micaene - shelly limstone, Ectropodida reefs, clay. Quaternary rocks represented by aeolian-talus deposits, with material composition - less-like loam and loess. Soils, occupying a significant part of Tracts - southern micelian-carbonate black earth, are one of the most fertile soil types on the Karsh Peninsula. There is a spatial matching soil types and underlying pre- Quaternary rocks, which in turn is likely to determine the features of talus formations of the Quaternary period, directly acting as a soil-forming grounds.
The 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)" Adzhikevich ("the settlement & the territory") in the Tula State Lev Tolstoy Pedagogical University (reference number 2014/389 Ministry of Education of Russia, research № 1799).

TH5-13 Abstract 13

Geomorphology and early Neolithic migration routes into the Transylvanian Depression

Author - Persoiu, Ioana, Stefan cel Mare University, Suceava, Romania (Presenting author)
Co-author(s) - Sotnik, Florica, Al. I. Cuza University, Iasi, Romania
Co-author(s) - Persoiu, Aurel, "Emil Racoviță" Institute of Speleology, Cluj-Napoca, Romania
Keywords: Carpathians, Early Neolithic, migration routes

Presentation Preference - Poster

In this paper we discuss the geomorphological conditioning of the migration routes of the early Neolithic communities into the Transylvanian Depression (Carpathian Mts., East Central Europe), as reflected by the spatial and temporal distribution of the Starčevo – Criș archaeological sites in the western part of Romania. The inventoried archaeological sites are located along rivers, preferentially positioned in the floodplain and low fluvial terraces; between 70 – 450 m asl, with few sites at higher elevations along rivers in the mountainous areas. The main access routes across the Carpathian Mts. was eastward from the Pannonian Basin, along the Mureș River. During Starčevo – Criș III, the communities were present only in the western part of the Transylvanian Depression, at the edge of the Apuseni Mountains. They have split along the main rivers and some small tributaries, and moved to the north, along Someșul Mic River and its right side tributaries. Starting with Starčevo – Criș III, the number of the early Neolithic communities has increased, mainly along Mureș River and its main tributaries (Târnava Mărăcinenilor, Târnava Mare, Argeș), associated with a slow eastward movement. A secondary eastward route was along the low alluvial plains (known as The Western Romanian Plain) of Mureș, Criș and Someș Rivers. Here too, the peoples moved from the area of Mureș alluvial plain to the NE. They arrived in the perimeter of the Someș alluvial plain only during Starčevo – Criș IV and V. From there, further to the east, neolithic sites are generally absent along the main (0.5 km wide) floodplains but present in the nitty area (crossed but smaller and narrower valleys), suggesting a possible geomorphic control on the spreading routes. The third route was along Olt River and seems to have occurred only during Starčevo – Criș III and IV. These communities moved to the east, along the main river and occupied Brâvii Depression and other small scale intramountain basins, at the eastern edge of the Transylvanian Basin. However, it is controversial whether Neolithic populations have crossed the Carpathians south to north to reach this route, or have spread eastwards, branching off route I above.

Based on these observations, the authors discuss the natural condition in some specific case studies, in order to offer answers to some key questions: (1) Why Someșul Mare – Someșul Mic Rivers seems to had been avoided by the early Neolithic communities? (2) (2) Were the Carpathians crossed only along the Mureș River, west to east, or did Neolithic populations used two routes, the second along the Olt River, south to north? (3) Are there preferential routes in the western alluvial plains, being known the complex fluvial relief in the area: abandoned palaeo-landforms, extended wet zones, isolated fluvial relics, low fluvial terraces? The authors acknowledge financial support from projects PN-II-ITPD-2012-3-0057, PN-II-RIU-TE-2014-4-1993, PN-IIID-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

Author - Timsic, Sandra, University of Saskatchewan, Saskatoon, Canada (Presenting author)
Co-author(s) - Patterson, William, University of Saskatchewan, Saskatoon, Canada
Co-author(s) - Gignac, Bruce, University of Saskatchewan, Saskatoon, Canada
Keywords: micromilling, seasonal climate, tree-rings and bivalves

Presentation Preference - Poster

High-resolution records are exceptionally important for reconstruction of past environmental and climatic conditions. Micromills are particularly important devices because they obtain discrete samples at high temporal resolutions, thus allowing for reconstructions of intra-annual environmental and climate variability. Seasonality of temperature and precipitation are one of the most significant parameters of climate that directly influences terrestrial and marine environments. Here, we present sub-seasonal climate data obtained using our custom-designed robotic micromilling device from bivalve shells retrieved from a North Atlantic core near Iceland and a wood disc from a white spruce tree collected near the tree line in coastal Labrador.

We provide the first whole Holocene temperature record of seasonality for the North Atlantic, a climatically important region with significant transregional effects. Thirty-five well-preserved aragonitic bivalves were extracted from a marine piston core from NW Iceland and sequentially micromilled concordant with growth banding. Carbonate aliquots were subsequently analyzed for δ18O(CaCO3) values to obtain snapshots of ambient seawater temperatures at a sub-monthly resolution. Our data suggest that the Early Holocene (10,650 to 7,600 cal yr BP) exhibited the most persistently warm summers, with maximum summer temperatures ~2°C higher, and with greater seasonality than during the subsequent cooler Neoglacial Period (7,000 to 4,750 cal yr BP). The Neoglacial Period was a relatively stable cold period, with the lowest summer maximum temperatures, as well as the lowest seasonality during the Holocene. Sporadic warm periods and increased seasonality are observed in the record after 4,500 cal yr BP, when maximum summer temperatures reached between ~7 and 9.5°C. The highest reconstructed temperatures of the entire record occurred during the Roman Warm Period at ~2,200 cal yr BP. Three centuries of subannual/annual climate data were retrieved from the δ18O and δ13C values of tree-ring cellulose in the temperature-sensitive region of central-coastal Labrador, Canada. A large cookie of a white spruce (Picea glauca) tree was micromilled to retrieve multiple samples per year and/or early and late wood that were subsequently analyzed for δ18O cellulose and δ13C cellulose values. The coastal Labrador region is a climatically dynamic region that is influenced by ocean-atmosphere interactions and thus has excellent potential for studying both, terrestrial and marine climate variability. We found a good agreement between reconstructed mean-annual temperatures and major climatic trends and events, including multidecadal warm and cold climate episodes, historical meteorological measurements collected by the Moravian missionaries, modern mean-annual temperatures and salinity anomalies in the NW North Atlantic Ocean, as well as cooling trends induced by major volcanic eruptions such as Lakagígar in 1783-84, Tambora in 1815, and Krakatoa in 1883. Persistent cold intervals are found from 1790 to 1810, 1875 to 1895, and 1950 to 1970, while the warmest intervals are found during the mid-18th and 19th centuries. Moreover, continuous transform wavelet analysis was used to analyze δ18O cellulose and δ13C cellulose periodicities and suggest that their interannual and multidecadal periodicities are similar to those of the NAO.
HUMAN LAND USE AND SUBSISTENCE HISTORY OVER THE HOLOCENE

TH5-14 Abstract 01
Towards a global history of human land use over the Holocene
Author - Prof. Whitehouse, Nicki, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Morrison, Kathleen, Department of Anthropology, University of Chicago, Chicago, United States of America (Presenting author)

This paper outlines the aims of the PAGES-funded Landcover6k project (http://www.pages-igbp.org/nc/eg/landcover6k/Intro), an international and interdisciplinary working group dedicated to reconstructing global Holocene land use and land cover. The goal of the project is to provide relevant, empirical data on global past anthropogenic land-cover and land-use change to climate modellers. The LandCover6k working group infers land-use data from fossil pollen records (lake sediments and peat deposits), and from historical archives and archaeological records (including pollen, wood and plant micro/macroremains). We focus on regions of the world where humans have had a significant impact on land cover during the last 6000 (6k) calendar years (in some regions earlier than 6k ago) through deforestation and diverse agricultural practices.

We outline why land-use change is important for understanding climate forcing and why its effects on climate remain poorly understood. Among the effects of land-use change on climate, the best known is biogeochemical effects, in particular the influence on the exchange of CO2 between the land surface and the atmosphere. The biogeochemical effects are less well understood. Moreover, the net effects of both biogeochemical and biogeophysical processes due to land-use change are still a matter of debate. The pollen-based reconstructions of past land use pollen-vegetation modelling approaches, with mapping of pollen-based land-cover change using spatial statistics, historical and archaeological data are upscaled and summarized onto maps of major land-use categories, linked to quantitative attributes. The results of both activities will then be used to revise existing Anthropogenic Land-Cover Change (ALCC) scenarios, which presently use models to reconstruct human impacts (e.g. Kaplan et al. 2009; Klein Goldewijk et al. 2011).

Our major focus is on the reconstruction of land-use history; the goal is to ensure that interpretations are archaeologically robust, well-informed by current understandings of human land use history and useful to the archaeological community, as well as the modeling community. We present initial results from our land categorization work and consider some of the challenges and opportunities associated with these efforts. These include some of the assumptions around the nature of human land use, 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:

TH5-14 Abstract 02
Land Use 6k: A First Assessment of South Asia
Author - Bauer, Andrew, Stanford University, Stanford, California, United States of America (Presenting author)
Co-author(s) - Madella, M., Universitat Pompeu Fabra, Barcelona, Spain

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 Landcover6k and LandUse6k project (http://landuse.uchicago.edu/about/) to reconstruct global land use and land cover datasets for the purpose of improving models of anthropogenic land cover change being used by climate scientists. Here we will present archaeological and palaeoclimatic data from different regions of modern day India, Pakistan, and Bangladesh in an effort to identify significant changes in agricultural, pastoral, hunting and foraging land use and anthropogenic land cover changes between ca. 6000 BP and 3000 BP. As we will detail, during this period there was an intensification and expansion of agricultural and pastoral land use across many regions of South Asia that significantly affected land cover and other environmental conditions.

TH5-14 Abstract 03
Long-term Patterns of Human Land Use in the Temperate Woodlands of Northeastern Mississippi, U.S.A.
Author - Professor Peacock, Evan, Mississippi State University, Mississippi State, MS, United States of America (Presenting author)
Co-author(s) - Sluyter, Andrew, Louisiana State University, Baton Rouge, United States of America

Land use, agricultural and settlement patterns, have been shown to significantly influence past landscapes, and are especially important for understanding Holocene land use patterns. However, the paucity of well-dated, landscape level archaeological remains in the eastern United States hinders efforts to better understand and reconstruct landscape level land use patterns. In this paper, we present findings from our dissertation research focused on investigating patterns of human land use in the Mississippi Delta between ca. 7000-2000 yrs cal. BP. Using seriations of ceramics and hafted bifaces and absolute dating results, we chart fluctuations over time in human population densities and the exploitation of a range of resources. Marked changes in human landscapes use are seen to have occurred during 1) the mid-Holocene, when climate change led to fluctuating environmental conditions; 2) ca. 500 BCE – 1000 CE, when human population growth related to the advent of sedentariness led to increasing hunter-gatherer pressure on local-scale environments; and 3) the adoption of agriculture at ca. 1000 CE, which was selected for in the face of such pressures. We also discuss the different roles that construction of monumental architecture may have played across the changing selective environment over the course of the Holocene. Using variations of ceramics and hafted bifaces and absolute dating results, we chart fluctuations over time in human population densities and the exploitation of a range of resources. Marked changes in human landscapes use are seen to have occurred during 1) the mid-Holocene, when climate change led to fluctuating environmental conditions; 2) ca. 500 BCE – 1000 CE, when human population growth related to the advent of sedentariness led to increasing hunter-gatherer pressure on local-scale environments; and 3) the adoption of agriculture at ca. 1000 CE, which was selected for in the face of such pressures. We also discuss the different roles that construction of monumental architecture may have played across the changing selective environment over the course of the Holocene.
Integrating synthesizes of land use by archaeologists, historians, and historical geographers, we present a preliminary meta-analysis of land use, including different modes of land use - foraging, agriculture, pastoralism, and urbanism - by indigenous and European cultures throughout Europe and the Americas. Our treatment considers eastern North America, the Great Plains of North America, and Middle America, including Mexico. We focus on specific time periods within the Middle and Late Holocene, as land use rapidly transformed from generalized foraging, to specialized foraging, to intensively managed commodification (including forms of pastoralism) and later agriculture, with urban centers appearing by 1000 AD in various parts of North America. We conclude with the historic era, 1850 CE, by which time agriculture and other land use practices were industrialized. Land use characteristics such as these are the foundation for the construction of higher fidelity models of recent climate change. This effort contributes to 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 and-cover reconstruction and archaeological models

Author - PhD Drslerova, Dagmar, Institute of Archaeology of the CAS, Prague, Czech Republic (Presenting author)
Co-author(s) – PhD Abraham, Vojtech, Department of Botany, Faculty of Science, Charles University, Prague, Czech Republic
Keywords: archaeological modeling, REVEALS, vegetation cover
Presentation Preference - Oral

Recent global change accelerates the need for understanding of human-climate relationship and for quantification of anthropogenic change in the past. We inferred human impact both from the pollen-based land-cover reconstruction and from archaeological data. We present a current state of the research concerning this cross validation for the Holocene period in the selected regions of the Czech Republic.

We used pollen data from the PALYVCZ database (http://botany.natur.cuni.cz/palycz) and recalculated them by the REVEALS model into vegetation estimates. The algorithm considers pollen productivity, pollen dispersal and deposition, when interpreting fossil pollen assemblages. The setting of model parameters was adopted from the previous testing, in which the model was adjusted to the recent vegetation in the same regions. Actual regional vegetation (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 land use modeling of the economic model of a prehistoric community and its consequences to the surrounding environment. Special attention was paid to estimate the amount of cereals that could be grown in different prehistoric periods. Pollen-based and archaeological reconstructions of different taxa, Cerealia, Plantago lanceolata and Poaceae were considered as indicators of crop cultivation, pastoral management, and deforestation in general.

The presence of the first tell settlements in the southeastern Romania and their development between 4700-3500 BC allowed some observation about animal paleoeconomy evolution over several cultural sequences (Boian, Gumelnita, Salcuta and Cernavoda I). Thus, the existences of numerous tell settlements with a complex stratigraphic and chrono-cultural sequences attested (e.g. Harsova, Vadicaesca, Casicoarele, Vitanesti, Draganași OII). Our research aims to give the opportunity to record some changes in the livestock and hunting activities. Regarding the livestock activity, cattle and sheep/goat which prevail, shows highly significant variations by region. The slaughtering curve study in several sites, can be notice that the hunting intensification can reach over 35% of males fauna identified. This intensification could be associated with a humid and rainy period characteristic for the Eneolithic period. Furthermore, in Eneolithic at southeast Romania, we can remark the fauna oscillation in several directions, which demonstrates that paleoeconomy of livestock is highly dynamic and associated with several factors. Thus, the connections with the environment are strengthened, a vital thing for an efficient exploitation of local potential.

THS-14 Abstract 07
Middle Neolithic transformations of food economy in the upper Vistula basin (SE Poland)

Author - Dr. Moskal-del Hoyo, Magdalena, W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków, Poland (Presenting author)
Co-author(s) – Dr. hab. Noeiew, Marek, Institute of Archaeology, Jagiellonian University, Kraków, Poland
Co-author(s) – Dr. hab. Mueller-Bieniek, Aldona, W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków, Poland
Co-author(s) – Dr. Szczawinski, Piotr, Faculty of Geography and Regional Studies, University of Warsaw, Warsaw, Poland
Co-author(s) – Dr. Wacinn, Agnieszka, W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków, Poland
Co-author(s) - Kozińska, Krystyfot, Institute of Archaeology, Jagiellonian University, Kraków, Poland
Keywords: food economy, Funnel Beaker Culture, South-Eastern Poland
Presentation Preference - Oral

In the first half of the fourth millennium BC, in the upper Vistula basin, from the perspective of the past material culture, the last units of the Long-Neck-Flute Pottery complexes (included to the so-called Danubian Neolithic) disappeared. In that period a new archaeological phenomenon appeared and was gradually spreading; it was the south-eastern group of the Funnel Beaker culture (SE TRB). In central-European prehistory, significant changes in systems of Neolithic food economy and settlement have been associated with this culture. In the most complete and systematic way they were modelled by J. Kruszewski and 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 occumene virtually all landscapes of a given territory (*second stage of Neolithisation*), i.e. western part of the Lower Vistula basin and 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 archaeo-spatial, paleoecologic and palaeoenvironmental data, obtained i.a. in the settlement of the TRB at Mrozowka (the Pilicow 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 loess highlands. Economy and settlement of Neolithic groups living in the fourth millennium BC in other ecological and cultural circumstances, not associated with broad-scaled, extensive human interference in their environment.

Consequently, the presentation will also be an attempt at explaining and understanding the causes of this variability.

THS-14 Abstract 08
High resolution record of land use, vegetation and erosion history from Lake Skogstjern

Author - Dr. Weickwoska-Luth, Magdalena, University of Kiel, Institute of Pre- and Protohistoric Archaeology, Kiel, Germany (Presenting author)
Co-author(s) – Persson, P. A. Per, Museum of Cultural History, University of Oslo, Oslo, Norway
Co-author(s) – Schülke, A. Schülk, Museum of Cultural History, University of Oslo, Oslo, Norway
Co-author(s) – Dörfler, W. Dörfl, Institute of Pre- and Protohistoric Archaeology, Kiel, Germany
Co-author(s) – Kröhn, W. Kröhn, University of Kiel, Institute of Pre- and Protohistoric Archaeology, Kiel, Germany

Keywords: archaeo-spatial, palaeoecologic and palaeoenvironmental data, landscape archaeology
Presentation Preference - Oral
In connection with two rescue excavation projects in Southeastern Norway, the Væftsløkkenprosjektet and the project E18-Rugt - the latter is a project in which University of Bergen was established, to extract and analyze a core from Lake Skogstjern, Bamble, Tlemark, the aim was to supplement archaeological excavation results, mainly traces of coastal settlement dating to the Mesolithic and Neolithic periods, with knowledge on vegetation history. From the comparison of archaeological and palaeoecological data, questions of human impacts on the vegetation during the Mesolithic as well as the process of neolithisation, with the introduction of agricultural practices and animal husbandry can be discussed. While the latter contributes with important data to an ongoing discussion, the former is a new field of research.

The coresite Lake Skogstjern provides pollen analytical investigations with a high temporal resolution of 12 to 38 yr/cm, showing a detailed picture of landscape development in a long-term perspective. Complementary techniques of non-pollen palynomorphs- and microscopic charcoal analysis as well as loss-on-ignition and determination of geochemical element distribution were also employed on its sediments, allowing the consideration of the palaeoecological interactions, climate, and human influence for more than 10500 years. Lake Skogstjern has, due to its rather small size, an extra-local signature.

The pollenanalytical data shows that first evidence of human activity emerges already during the Mesolithic, reflecting small-scale openings of the forests by the assistance of fire. First traces of agriculture occur during the Early Neolithic. These are, however, signs of rather small scale ‘cereal cultivation’ and of only limited animal husbandry. During the following periods, there are again and again traces of agriculture, nevertheless, human impact remains on a more or less low-level and does not generate any significant palaeoenvironmental changes. The palaeoecological record evidences some intensification in animal husbandry only during the second half of the Bronze Age, involving slightly higher degree in landscape openness and the utilization of wet meadows for grazing purposes. Crop cultivation, however, plays a minor role even up to the pre-Roman Iron Age.

According to the pollenanalytical data the establishment of a full farming community is taking place exclusively in the centuries AD, characterized by a general expansion and intensification of the land-use as verified by extensive forest clearances and fires, crop cultivation on permanent fields and the presence of open pastures as well as associated therewith advanced soil degeneration and increased erosion rates.

These results both support as well as challenge the archaeological discussion on the relationship of humans and surroundings and from a mobile to a sedentary way of life.

---

**TH5-14 Abstract 09**

A varve preservation record of climate change and human impact from Lake Tiefer See (NE Germany)

**Author** - M.Sc. Dräger, Nadine, GFZ Potsdam, Potsdam, Germany (Presenting author)

**Co-author(s)** - Thewrauk, Martin, Institute for Geography and Geology, Ernst-Moritz-Arndt University, Greifswald, Germany

**Co-author(s)** - Wulf, Sabine, Senckenberg Research Institute and Natural History Museum, Evolution and Climate, Frankfurt a. M., Germany

**Co-author(s)** - Szareczynska, Krystyna, Polish Academy of Sciences, Institute of Geologic Sciences, Warsaw, Poland

**Co-author(s)** - Hohm, Thomas, University of Rostock, Department of Biology, Institute of Botany, Rostock, Germany

**Co-author(s)** - Tjallingii, Rik, GFZ Potsdam, Germany

**Co-author(s)** - Plessen, Birgit, GFZ Potsdam, Germany

**Co-author(s)** - Kienel, Ulrike, GFZ Potsdam, Germany

**Co-author(s)** - Lorenz, Sebastian, Institute for Geography and Geology, Ernst-Moritz-Arndt University, Greifswald, Germany

**Co-author(s)** - Braun, Achim, GFZ Potsdam, Germany

**Keywords:** human impact, lake sediments, varve chronology

**Presentation Preference - Oral**

Annually laminated (varved) lake sediments represent unique archives in continental areas providing both, precise chronologies and seasonally resolving proxy data. Lake Tiefer See in NE Germany provides such an archive for an integrated multi-proxy study based on high-resolution sediment analyses.

Lake Tiefer See was formed during the last glaciation and is part of the Klosskin Lake Chain, a subglacial channel system that crosses the Pomeranian terminal moraine. Coring campaigns at the deepest part of the lake (82 m water depth) yielded 7 sediment profiles. From these individual profiles a 7.7 m long continuous composite profile has been compiled covering the past ~6000 years. The chronology of the core sequence is based on a multiple dating approach including varve counting, radiocarbon dating of terrestrial plant remains and tephrochronology. We present a combined approach of microlites analyses using thin sections, µXRF 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 Tiefer See exhibits distinct decadal- to centennial-scale alternations between well- and non-varved intervals with an increasing trend of non-varved periods since ~4000 cal yr BP. These non-varved episodes generally coincide with phases of increased vegetation openness as reconstructed from pollen data. Predominantly varved intervals before AD 1924 are characterized by low productivity and concur with closed forests in the lake catchment. In contrast, well-preserved varves after AD 1924 are linked to increased lake productivity likely due to anthropogenic eutrophication. In this study we discuss the influence of climate change and human activity on varve preservation. We propose that the observed long-term increase of non-varved intervals is linked to gradual climate change in the Late Holocene triggered by insolation change, whereas superimposed centennial- and decadal variability of varve preservation causes by a complex interaction between human activity and short-term climate changes. We furthermore discuss possible relationships between known climate variability and human history at Lake 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 Transregional Environmental Observatory (TERENO) of the Helmholtz Association.

---

**TH5-14 Abstract 10**

Early agriculture and landscape evolution in the Mediterranean

**Author** - Dr. McLaughlin, Rowan, Queen’s University Belfast, Belfast, United Kingdom (Presenting author)

**Co-author(s)** - Malone, C., Queen’s University Belfast, Belfast, United Kingdom

**Co-author(s)** - Farrell, M., Queen’s University Belfast, Belfast, United Kingdom

**Co-author(s)** - Flood, R., Queen’s University Belfast, Belfast, United Kingdom

**Co-author(s)** - Fanech, K., University of Malta, Malta, Malta

**Co-author(s)** - Schermbr, P., University of Malta, Malta, Malta

**Co-author(s)** - Valla, N., University of Malta, Malta, Malta

**Co-author(s)** - French, C., University of Cambridge, Cambridge, United Kingdom

**Co-author(s)** - Shoddart, S., University of Cambridge, Cambridge, United Kingdom

**Co-author(s)** - Taylor, S., University of Cambridge, Cambridge, United Kingdom

**Co-author(s)** - Bates, J., University of Cambridge, Cambridge, United Kingdom

**Co-author(s)** - McCormick, F., Queen’s University Belfast, Belfast, United Kingdom

**Keywords:** Agriculture, Neolithic, Sustainability

**Presentation Preference - Oral**

The Maltese Islands – a small, relatively isolated archipelago of only 316 sq. km. – have been exploited by successive agricultural civilisations since 5000 cal BC. Around 3000 cal BC there was a cultural fluorescence that saw the construction of elaborate communal hypogia, distinctive forms of figurative art, and unparalleled megalithic architecture. Through interdisciplinary work in paleoecology and the archaeological sciences, the ERC-funded FRAGSUS project is currently investigating how small island communities managed to sustain such a precious economy and culture in such a restricted ecological setting. New archaeological and zooarchaeological data has revealed the widespread importance of cereal agriculture and domesticated livestock in prehistoric Malta. Modelling the potential for soil erosion has revealed that technical mechanisms to manage the environment were developed by prehistoric agriculturists. But were there failures in the agricultural system, and what impact did this have? Shortly after 2400 cal BC, for example, there was an episode of cultural change - was this a consequence of social-economic collapse, or ecological collapse? An overview of this research is presented in this paper, acknowledging the challenges that exist when comparing archaeological events with environmental data lacking chronological resolution.

---

**TH5-14 Abstract 11**

Environmental changes and agricultural systems in NW Iberia during the Middle and Late Holocene

**Author** - Seabra, Luis, CIBIO-Research Center In Biodiversity and Genetic Resources-University of Porto, Paços de Ferreira, Portugal (Presenting author)

**Co-author(s)** - Tereso, João Pedro, T.J.P., João Pedro Vicente Teresa, Porto, Portugal

**Keywords:** Agricultural systems, Environmental changes, Middle and Late Holocene, Northwest Iberia, Carpathy

**Presentation Preference - Oral**

Interpretative approaches gathering archaeological and palaeoecological 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 palaeo-environmental 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 archaeo-botanical records.
The main focus of this presentation will be the carpalogical data available for northwest Iberia, including unpublished material. Carpalogical data from late prehistoric and protohistoric sites allowed the identification of key-moments in agricultural history and the introduction of some crops and the development of new social-ecological systems. These key-moments include the Middle/Late Bronze Age (c. 1800 - 700/600 BC) and the Iron Age (700/600 BC to the 1st century BC) and correspond to significant changes in human societies as suggested by data regarding the evolution of settlement, technology and economy 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 in crop cultivation and pasture 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 cultivated forms of Triticum, Triticum dicoccum and Triticum spelta which were good choices for undermending and erosive soils. These different environmental and archaeological records will be presented in order to address the main changes in land cover and land use, namely their relation with the evolution of agricultural strategies and social-ecological systems in Northwest Iberia.

TH5-14 Abstract 12
The anthropization of the Cantabrian Mountains (NW Iberia) during the Later Prehistory
Author - Dr. González Álvarez, David, Universidad Complutense de Madrid, Salas, Spain (Presenting author)
Keywords: Anthropization, Landscape Archaeology, Later Prehistory
Presentation Preference - Oral

This paper attempts to provide a historical narrative that accounts for the biography of the cultural landscapes of the Western part of the Cantabrian Mountains based on a social interpretation of archaeological data and 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.a. 4800 BC) and the Roman conquest of the area under study (late first century BC). In light of the data considered for the mountainous area which separates Spanish contemporary regions of Asturias and León, the investigation reflects about the human experiences and the historical processes that intervened in the anthropization and the social construction of the cultural landscapes of the Later Prehistory in the area.

During the Neolithic there is a spread of agriculture and farming. This process can be perceived earlier in the coastal areas than 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 itinerary forms of production and settlement. Later in the Bronze Age, the anthropization of the territory significantly increased, revealing a certain tendency towards the territorialization of human groups. The Iron Age implied the almost complete adoption of sedentary forms of life by human groups. Iron Age communities developed new livestock and farming practices, now intensified with the emergence of stable crop fields. This new productive pattern led to the emergence of a compartmentalized and highly anthropized landscape around the hilltops. However, this general scheme shows some gaps and exceptions which should be considered in detail. In the first place, they could reveal the limits of the data available for the region. But, more interestingly, they might point out the divergence in the social and cultural livelihoods performed by the communities that inhabited the Cantabrian Mountains during the Later Prehistory.

TH5-14 Abstract 13
Human-environment interactions in the Alps: Archaeological and palaeoenvironmental approaches
Author - Dr. Walsh, Kevin, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Dr. Becker, Katharina, University College Cork, Cork City, Ireland
Co-author(s) - Dr. McCoileac, Meriel, Dept of Archaeology, UCD, Dublin
Co-author(s) - Eogan, James, TII, Ireland
Co-author(s) - Walsh, Kevin, University of York, York, United Kingdom
Keywords: archaeology, Ireland, palaeoenvironments
Presentation Preference - Oral

In this paper we outline the initial results of an integrated palaeoenvironmental and archaeological study from southeast Ireland, funded by RISTA (The Heritage Council, Ireland) which has been investigating changes in settlement patterns and subsistence from the late Bronze Age into the Iron Age as derived from extensive, well dated, palaeoenvironmental data from ‘Celtic Tiger’ era development-led excavations. The project has compiled and critically assessed the evidence for lifeways and subsistence strategies derived from multiple archaeological sites, including data from faunal and macrofossil analyses and chronological modelling of radiocarbon dates. These data have been integrated with evidence for patterns of landscape change and human
activity derived from palaeoenvironmental records. The study opens up new perspectives on this critical period in Irish prehistory and also illustrates the methodological and theoretical challenges of interpreting archaeological and palaeoenvironmental data.

TH5-14 Abstract 16
Land use and vegetal biodiversity in the Iron Age landscape of Brittany (France)

Author - Dr. Van Beek, Roy, Universite de Rennes 2, Rosendaal, Netherlands (Presenting author)
Co-author(s) - Marguerue, Dominique, Ecobio, Universite de Rennes 1, Rennes, France
Co-author(s) - Burel, Francois, Ecobio, Universite de Rennes 1, Rennes, France
Co-author(s) - Antoine, Anne, CERMPO, Universite de Rennes 2, Rennes, France
Keywords: Iron Age Brittany (NW-France), land use patterns, vegetal biodiversity

Biodiversity has been a popular research topic in the last decades. With the rapid current loss of biodiversity, estimated at about 5% per decade, it is easy to understand why. Palaeo-ecological research can provide insights into the relations between past vegetal biodiversity and environmental change. Climate changes and human activities are generally accepted to be the prime drivers behind these processes. Nevertheless, detailed analyses of the correlation between past human agency and vegetal biodiversity in Northwest Europe are still quite rare. In this paper we aim to reconstruct and explain spatio-temporal trends in past vegetal biodiversity by integrating data on vegetation dynamics, human subsistence economy and land use patterns. The landscape of Brittany (North-Western France) during the Second Iron Age (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 propose to integrate these different types of data and assess how the results contribute to wider discussions on the link between human behaviour and biodiversity.

TH5-14 Abstract 17
Invisible Prehistoric sites: development of land use by Eurasian nomadic population

Author - Azarov, Evgeny, State Historical Museum, Moscow, Russian Federation (Presenting author)
Co-author(s) - Shishina, Natalia, State Historical Museum, Moscow, Russian Federation
Co-author(s) - Borisov, Alexander, Soil Institute, Puschino, Russian Federation
Co-author(s) - Krylov, Ilya, Caucasian Academy of Sciences, Tbilisi, Georgia
Co-author(s) - Dyatlova, Tatjana, Moscow State University, Moscow, Russian Federation
Keywords: Bronde 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, geosimulation, palaeobotany provided an opportunity to obtain conceptually new data on the location and operation pattern of winter and summer pastures and camps themselves. To identify temporary camps, it is important to identify those land areas located in proximity to the camps where grazing was the most suitable at certain times of the year, taking into account natural features. For the winter season it has been demonstrated that deeply cut gullies with rather steep slopes facing south, south-west and south-east are most suitable for winter grazing, determining the existence of temporary winter camps in such areas. The arrangement of summer temporary camps demonstrates a reverse pattern. It is assumed that summer camps and pastures were located near streams on open windswept watershed sections rather than near submontane features of the relief. Such camps can be discovered only if the soil is overlaid by natural deposits, which may occur on sections with sand.
Keywords: Anthracology, palynology, trace fossils, Geoarchaeology, land use, paleoecology

Presentation Preference: Oral

We've hypothesized that such disturbances as forest clearing, burning, ploughing, grazing, and trampling on small watercourses in the forest-steppe transition zone can lead to a rapid and substantial increase in the surface run-off, mass transfer, and accumulation of colluvium in closed depressions and gullies within the catchment areas. Depopulation of the catchment area would, in turn, cause the surface stabilization and either grassland or forest soil formation. The combination of pedological, ichnological, palynological, and anthropological studies was utilized to reconstruct the history of human occupation of 6 small watercourses on the East European Plain.

The sites with a good archaeological record were used to form “training sets” for our study. From 4 to 6 cycles of erosion and accumulation occurred in our study sites during the Holocene.

Each cycle began with fires, leading to the increase in runoff and accumulation of colluvial fan deposits, and ended with the stabilization of the surface as grassland or forest was reestablished and an immature soil was formed. The cycles were correlated with the periods of human occupation of the catchment area known from the archaeological surveys and radiocarbon dated using the soil charcoal.

Sand and gravel size fractions of soils and colluvial deposits contained charcoal of trees and shrubs, herbaceous char, charred seeds and bone fragments, heated mineral aggregates, and insect and animal feces. Eight type assemblages were described in association with various types of forest fires, swidden cultivation, permanent fields, woodland pastures, and open (frequently burned) pastures. Some criteria were proposed to discern the utilization of gullies as roads and droveways. The assemblages were compared with the pollen spectra from the same samples and trace fossils from the same soil horizons/ depositional layers to define a multi-proxy signature of each land use type.

Only a few of the multiple fire occurrences could be attributed to the natural forest fires, the others were associated with the land use practices. According to the radiocarbon dating of charcoal from the type assemblages, a combination of fire and grazing has triggered wide deforestation of potentially forested areas within the forest-steppe zone during the warm climatic phase of the middle Holocene (IV to III millennia BC, the Chalcolithic/Bronze Age). Small-scale deforestation associated with the swidden cultivation is dated here by VIII-XII cent AD. Frequent burning of potentially forested areas as means of maintaining grazing grounds did not begin until ~X cent AD. The widespread advance of pine in the Late Medieval time could be a direct result of the co-action of herbivory and linear erosion due to overgrazing. Signs of long-term cultivation (plough fields) appear in various regions of the forest-steppe in VII-X cent. AD. Both the Medieval Warming and growing networks of open fields contributed to the large-scale deforestation of the forest-steppe in X-XI cent. AD. That entailed a considerable expansion of home ranges of burrowing rodents, typical steppe inhabitants.

The results can be applied to reconstruct the land use history in areas with poor archaeological data, and determine when certain land use practices came in use.

THS-14 Abstract 22

Investigation of soils from archaeological monuments using biological methods

Author: Tukhbatova, Rezeda, Kazan Federal University, Kazan, Russian Federation (Presenting author)
Co-author(s): Shilkov, Anat., Kazan Federal University, Kazan, Russian Federation

Keywords: ancient soil, Bolgar city

Presentation Preference: Oral

During thousand years of history 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 (XXV 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.

THS-14 Abstract 23

Following spits: Stone Age coastal adaptation and coastal morphology in the Narva-Luga region

Author: Dr. Garasimov, Dmitry, Museum of Anthropology and Ethnography
Rus. Acad. Sci., St.-Petersburg, Russian Federation (Presenting author)
Co-author(s): Sergeev, A., VSEGEI, St.-Petersburg, Russian Federation
Co-author(s): Ryuetchuk, D., VSEGEI, St.-Petersburg, Russian Federation
Co-author(s): Kriiska, A., Tartu University, Tartu, Estonia
Co-author(s): Khokhrova, M., St.-Petersburg State University, St.-Petersburg, Russian Federation
Co-author(s): Nordqvist, K., University of Oulu, Oulu, Finland

Keywords: Eastern Gulf of Finland, Holocene Stone Age, sea coast development

Presentation Preference: Poster

A model of coastal morphology development in Narva-Luga region at the Russian-Estonian border (south-east of the Gulf of Finland) in Middle and Late Holocene (5000-2000 cal. BC) was suggested basing on the last decade multidisciplinary studies. This model was improved and got chronological references basing on archaeological data – remains of Stone Age coastal settlements. Strict relations between sea shoreline and human settlements/hunting camps ended at the time of the first farming societies (Corded Ware tradition) appeared in the region.
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 - Ploomp, Esther, Free University Amsterdam, Amsterdam, Netherlands (Presenting author)
Co-author(s) - Jauwen, Klervia, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany
Co-author(s) - Brems, Dieter, University of Leuven, Department of Earth and Environmental Science, Leuven, Belgium

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, 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, seeds), archaeological materials (e.g. raw materials, ceramics, glass artefacts, metals, building stones) or environmental samples from archaeological sites (e.g. speleothems, soils). These contributions should show the potential of using stable isotopes to expand our understanding of human nutrition and mobility.

Keywords: chemistry, bioarchaeology, isotope, trace element

TH5-15 Abstract 02

Zinc isotope compositions of bone and dental enamel and their relationship to diet

Author - Dr. Jaacun, Kleveria, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany (Presenting author)
Co-author(s) - Speak, Paul, University of British Columbia, Vancouver, Canada
Co-author(s) - Beasley, Melanne, University of California, San Diego, United States of America
Co-author(s) - Herrscher, Estelle, LAMPEA, MSHS, Aix en Provence, France
Co-author(s) - Collett, Rosann, INRAP, Naness, France
Co-author(s) - Balter, Vincent, ENS Lyon, Lyon, France
Co-author(s) - Schoeninger, Margaret, University of California, San Diego, United States of America
Co-author(s) - Richards, Michael, Vrije Universiteit Amsterdam, Amsterdam, Netherlands

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 bone apatite. First studies on Zn isotope compositions in bone revealed potential as a new dietary tracer. This contribution aims at testing the influence of diet on Zn isotope compositions of bone and teeth. We investigated the Zn isotopic variability in bone and tooth enamel of mammals and archaeological human populations characterized by various diets, environment contexts (arctic, arid, temperate) and historical periods. The samples were purified by column chromatography and the Zn isotopic ratios were measured using MC-ICP-MS. The Zn isotope composition of bone and teeth is strongly influenced by factors which 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 Simis, Laura G.1 (Presenting Author) School of Geography, Archaeology and Palaeoecology, Queen’s University Belfast, United Kingdom
Co-author(s) - Ogle, 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

Presentation Preference - Oral

Palaeodiets studies commonly analyse δ13C and δ15N ratios in archaeological bone to infer past dietary habits, although δ15N ratios can be influenced by a range of factors other than diet ( acidity, manuring, soil conditions, etc.). δ2H ratios have been shown to function as a trophic level indicator (Brothwell et al., 2005; Reynard and Hedges 2008), which can be very useful to aid our interpretation of the δ13C and δ15N ratios and improve our understanding of palaeodietsary habits and subsistence practices. Hydrogen in organsics consists of a non-exchangeable and exchangeable fraction; the latter will equilibrate with atmospheric hydrogen. Atmospheric hydrogen is present in the environment of the stable isotope ratio, ultimately following the exchange process. While this method is not novel (Bowen et al., 2003; Meier-Augenstein et al., 2011), its application with the use of δ2H values is required for the study of human tissues.

Recent developments in mass spectrometry have made it possible to explore the potential of new isotope systems for the provenancing of humans, complementing the existing systems: strontium (Sr), oxygen (O), hydrogen (H) and lead (Pb). The addition of another isotope system to the isotopic provenancing repertoire can potentially provide us with more specific information on the region of origin and thus address some of the limitations that are still associated with the more commonly used isotopic techniques. This study reports on the viability of using neodymium isotopes (143Nd/144Nd) as a candidate to track the origins of humans. Due to the isotopic variations in the crust the samarium-neodymium isotope decay system has previously successfully been applied to identify the production centres of glass archaeological artefacts, usually in combination with oxygen or strontium isotope ratios. The tendency of the human body to bio-purify non-essential elements means that REE concentrations are low in human teeth (Nd <0.1 ppm), such that previously Nd isotope analysis was not possible. We report the optimisation of chromatographic methods to separate Nd from bioapatite. Sub-nanogram amounts of neodymium were analysed using a latest generation thermal ionization mass spectrometer (TRITON-Plus) equipped with 1013 c) resistors at the Vrije Universiteit Amsterdam. This study presents the neodymium concentration and composition results of third molars from modern Dutch residents. These results will be compared to other isotopic systems (Sr and Pb) and the possibilities for Nd as an archaeological human provenancing tool will be discussed.
TH5-15 Abstract 04

Stable isotope ratios and trace elements in modern mammal tooth enamel

Author - Dr. De Winter, Niels, Vrije Universiteit Brussels, Elsene, Belgium (Presenting author)
Co-author(s) - Snoeck, Christophe, Vrije Universiteit Brussels, Elsene, Belgium
Co-author(s) - Goderis, Steven, Vrije Universiteit Brussels, Elsene, Belgium
Co-author(s) - Van Malderen, Stijn, Ghent University, Ghent, Belgium
Co-author(s) - Vanhaecke, Franke, Ghent University, Ghent, Belgium
Co-author(s) - Claeyss, Philippe, Vrije Universiteit Brussels, Elsene, Belgium

Keywords: bioapatite, isotopes, trace elements

Presentation Preference - Oral

Bioapatite from mammal tooth enamel is a popular biomaterial used in the reconstruction of palaeoenvironment and palaeodiet. It records information about the animal’s environment and diet on a sub-annual scale and is proven to be highly resistant to diagenesis, allowing the preservation of its original chemical composition through archaeologically 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 ($\delta^{13}$C, $\delta^{18}$O) are combined to test the reliability of trace element profiles from mammal teeth in recording seasonal changes in environment and diet of the animal.

A method is presented that links the various geochemical records within a tooth sequence using mineralization sequences and oxygen isotope seasonality. This way, a 3 year trace element and stable isotope record from horse tooth enamel is created showing seasonal variation in trace elements and isotope ratios linked to changes in climatic conditions and diet through the animal’s lifetime.

This study shows how an entire new set of trace element proxies, that can be measured quickly and non-destructively, may yield information on palaeoenvironment and palaeodiet. These trace element measurements yield information from precious archaeological samples that could otherwise be obtained solely through destructive sampling. The versatility of the μXRF and LA-ICP-MS methods opens up a wide range of applications for trace element analysis in archaeology.

---

TH5-15 Abstract 05

The geochemical relationship between soil, plant and streamwater; implications for migration studies

Author - Ryan, Saskia, Trinity College Dublin, Dublin, Ireland
Co-author(s) - Crowley, Quentin, Trinity College Dublin, Dublin, Ireland
Co-author(s) - Ryan, Saskia, Trinity College Dublin, Dublin, Ireland
Co-author(s) - Babechuk, Michael, Trinity College Dublin, Dublin, Ireland

Keywords: Geographical discrimination, Multi-element composition, Strontium isotopes

Presentation Preference - Oral

Strontium isotopes ($87^{\text{Sr}}/86^{\text{Sr}}$) and rare earth element (REE) analyses of rock, the leachable fraction of soil, plant and surface waters are applied as chemical proxies to assess chemical reservoir interactions, element bioavailability and geographic variability. These processes are the basis for geographic discrimination and associated archaeological provenancing. 53 biosphere samples were collected from a small geographic area in Co. Meath, a region of Ireland that has highly variable bedrock and surficial geology and hosts significant archaeological sites including, Newgrange, the Hill of Tara and Knowth. These multi-element and isotopic geochemical data cohere geochronologically with this region and the high degree of spatial variability in $87^{\text{Sr}}/86^{\text{Sr}}$ highlights the inherent requirement for high-density sampling in order to isotopically characterise distinct reservoirs. The results of this study provide a baseline of biosphere geochemical data that can be applied to archaeological studies examining the past migration of populations in this archaeologically important region.
All glasses were soda-silica in composition, with natron as a flux. Strongly coloured glass was coloured with Cu, Cu and Mn. Pale coloured glass has varying MnO, up to 1.9%, suggesting that they were intended to be colourless. Colourless bottles can be divided into three groups: Mn-, Sr- and mixed Mn-Sr-decoloured glass. All Mn-decolourised, pale and strongly coloured vessels have closely similar base glass compositions to glass from the tank furnaces, suggesting local production and working. The Sr-decoloured glass was made from a different sand source with higher SiO2 and lower Al2O3 and CaO. Mixed Mn-Sr-decoloured glass has intermediate compositions, suggesting they are the result of recycling. Sr and Nd isotopic analyses confirm the different primary origin of the Sr-decoloured glass. The isotopic signatures of the other glasses correspond well to those measured in some of the Lebanese sands, suggesting they were indeed produced locally.

1 S. Jennings, Vessel glasses from Beirut (Bey 006, 007 and 045), Beryll Archaeological Studies 48-49, 2006.

The Sb-decoloured glass was made from a different sand source with higher SiO2 and lower Al2O3 and CaO. Mixed Mn-Sb-decoloured glass has intermediate compositions, suggesting they are the result of recycling. 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.

The development of precise and accurate analytical techniques over the last decades has allowed expanding the range of methods to be used in the study of ancient metals. However, when it comes to iron and attempts to determine its geological origin, more questions than answers have been posed. The 3-year research project launched by UrbNet centre based at the University of Aarhus is facilitating the collaboration of geologists and archaeologists. It aims to employ a multi-disciplinary approach in order to determine the extent to which the chemical composition of iron ores is preserved in the iron slag. We investigate the slag from east Africa Swahili coastal sites, presenting the potential for both, local and imported material. The artefacts are subjected to petrographic, metallurgical, elemental and isotopic analyses in order to determine the validity of methods and the feasibility of further analyses. Thermal experiments are devised to improve the data and overcome some of the challenges we are facing.

4 F. Poitrasson et al, 2005, Heavy iron isotope composition of granites determined by high resolution MC-ICP-MS, Chemical Geology 222, 123-147.
are able to detect elements in traces; these, in prehistoric archaeometallurgy have been used not only to understand the composition of a prehistoric alloy, but even to understand which ones have been exploited to obtain the metal. There could be many ways of using these data. Recently, during the study of copper objects, it has been noticed that there is a pattern of particular concentration of heavy elements traces in specific parts of objects from Early Bronze Age Anatolian contexts. After some speculations, it may be possible to hypothesise that these concentrations are due the precipitation of heavy elements in a liquid state copper melt. These indicators may allow identification of the orientation of objects during the casting phase, giving important data about the technologies used in the production of items and item categories, allowing production categories to be compared within object or type categories.

TH5 Science and multidisciplinarity in archaeology

TH5-15 Abstract 13

Chemical and physical composition of disturbed and less disturbed soil of the Dūkšteliai 1 site

Author - Gedmintienė, Laura, Nature Research Centre, Vilnius, Lithuania
Co-author(s) - Dudaite, Gabriela, Vilnius university, Faculty of History, Archaeology Department, Vilnius, Lithuania (Presenting author)

Keywords: Early Mesolithic and Neolithic-Bronze Age, Geochemical and LOI analyses, Human inhabitance

Presentation Preference - Poster

In 2013 an archaeological investigation of the first inhabitation of River Neris basin in Lithuania has been initiated. As a part of the research, a newly discovered prehistoric site Dūkšteliai 1 on the lake Dūkšteliai shore (Eastern Lithuania) was excavated in order to gather some new archaeological data for comparison with the material from other prehistoric sites in River Neris basin, and also to gain additional knowledge about the first inhabitants in this region. After excavating 100 m2 of the site structures were uncovered which, according to the first artefacts typology, correspond to Early Mesolithic or Neolithic-Bronze Age. Also the new palaeobotanical and geochemical data on Dūkštelis Lake bottom deposits indicated at least two episodes of human inhabitance at the lake shore.

In order to reveal the functional use of the prehistoric settlement elements, two structures were chosen for closer study – a probable hut and a hearth. The research was interdisciplinary: together with archaeological methods of investigation - examination on the distribution of the finds (flint 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 fluctation and microscopic bioarchaeological research was done in order to find macro-boring remains that could reveal some details about prehistoric people diet. Geochemical analysis and loss on ignition method (LOI) were also used to find out if there are any elements significant for interpretation but undistinguished during the archaeological excavation.

The samples for geochemical and LOI analyses were collected from the structures as follows: in the middle of the structure, 20cm from the centre and in periphery. It was presumed that the latter represented less disturbed soil. Determination of major and trace elements Al, Ba, Br, Ca, Cl, Cr, Cu, Fe, Ga, K, Mg, Mn, Na, Nb, Ni, P, Pb, Rb, Si, Sr, Ti, Zn, S was done using energy-dispersive x-ray fluorescence SpectroX eqipment and the Turboquant calibration method for pressed pellets. Also samples were dried at the temperature of 110°C; then heated at 550°C and 950°C to burn out the organic matter and carbonates, respectively. As a result, insignificant geochemical difference between samples has been observed and only minor inequality of element contents could be seen. Using Ward’s method and Euclidean distances a free diagram for 24 variables was drawn and trace elements were classified into groups representing: 1) clay minerals – Al, Rb, K, Ti; 2) carbonates – Sr, Ca, Ba; and 3) organic matter group with higher amount of Fe, Mn, Co, Zn, P, S. The new data show that higher concentrations of all three group elements accumulated in organic richer samples, which yielded more charcoal and pottery – in the center of the structures.

In this poster presentation the upcoming results of all the investigation procedures undertaken will be presented with the subsequent conclusions about the presumptive functional use of the prehistoric structures in Dūkšteliai 1 site.
We propose here a synthesis about the Holocene environmental history of South Greenland, with a focus on the last millennium.

Littleton Bog is influenced by the complex interactions between regional climatic forcing, autogenic internal bog processes, and pastoral activities, a change in Norse diet and a progressive abandonment of South Greenland. The regrowth of willow and birch and the disappearance of anthropogenic indicators between the 15th and 19th century demonstrate the abandonment of settlement, until the development of contemporary agriculture in the 20th century. Recent agricultural activities (1950–1980 AD) had the same impact as Norse agriculture.

However, the biological and sedimentological response to the last 30 years of modern sheep farming is marked, with drastic changes in diatoms and chironomids taxa, fossil molecular markers and C and N isotopes.

---

**TH5-16 Abstract 04**

**Reconstructing cattle management in Neolithic Switzerland using multi-isotopic analysis**

**Author:** Dr. Georgina, Claudia, University of Basel, Basel, Switzerland (Presenting author)

**Co-author(s):**
- Dr. Dappel, T., University of Basel, Basel, Switzerland
- Dr. Heyd, V., University of Bristol, Bristol, United Kingdom
- Dr. Knipper, C., Curt-Engelhorn Centre Archaeometry, Mannheim, Germany
- Prof. Dr. Lehmann, M.F., University of Basel, Basel, Switzerland
- Prof. Pike, A.W.G., University of Southampton, Southampton, United Kingdom
- Prof. Dr. Schlöbler, J., University of Basel, Basel, Switzerland

**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 3000 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. At all sites investigated we have provided vast and well documented cattle bone collections. We applied strontium, oxygen, carbon and nitrogen isotopic analyses to those remains to gain insight into strategies of animal management. Key questions were: Were cattle kept in or near the settlements or were they pastured further away? Where are potential pasture grounds? Is there evidence of regular mobility, maybe linked to seasonally varying patterns of alpine summer pasturing? On which level was cattle herding organised (household, village, networks between villages)?

---

**TH5-16 Abstract 05**

**Insights into crannog occupation phases from National Sites and Monuments Reports**

**Author:** Dr. Fowlie, Thierry, University of Southampton, Southampton, United Kingdom (Presenting author)

**Keywords:** crannog, GIS, Wetland, Medieval, Iron Age, Ireland, Scotland

**Presentation Preference:** Oral

Crannogs are man-made islands that are ubiquitous on the north-western fringes of the British Isles. Over 1500 have been identified, but their function is not well understood, with some crannogs apparently simple workshops, while others were royal occupation sites. They were built mainly during the Iron Age and Medieval Periods, but there is evidence that this tradition started in the Neolithic and some sites were occupied in the 17th century. In this paper, the potential drivers for crannog construction are examined, by analysing the distribution of crannog dates both chronologically and spatially. For this purpose, a database of crannogs was constructed from the sites and monuments records of Scotland, Ireland and Northern Ireland. Two types of analysis were performed on the database: a probability density function and the allocation of crannog dates to time intervals, which might be compared by comparing the distribution of crannogs to known climatic events, the theory that low lake levels might have contributed to their expansion can be explored. The spatial distribution of crannogs is also compared to the probable extent of nearby kingdoms and the timing of political events, such as the impact of the outcome of the Battle of Moira in AD 637, to gain a deeper understanding of the defensive and/or status properties of these sites. To assess whether local wealth may have been a factor in the construction of the sites, the distribution of crannogs has been compared to major transport networks in the late Prehistoric and Medieval periods. This study can be used to support the archaeoecological interpretation of the individual sites and attempts to develop a large scale understanding of crannog construction and occupation.
TH5-16 Abstract 06
The Early Iron Age ‘lake village’ at Black Loch of Myrton
Author - Dr. Cavers, Graeme, AOC Archaeology group, Loaehane, United Kingdom (Presenting author)
Co-author(s) - Dr. Crone, Anne, AOC Archaeology group, Loaehane, United Kingdom
Co-author(s) - Dr. Van Hardenbroek, Maarten, University of Southampston, United Kingdom
Co-author(s) - Dr. Whitehouse, Nicola, Plymouth University, Plymouth, United Kingdom
Keywords: crannog, lake village, iron age, scotland
Presentation Preference - Oral
The discovery of the remains of a spectacularly well-preserved settlement at Black Loch of Myrton, South West Scotland has opened up the possibility for an investigation of early Iron Age society in northern Britain that goes far beyond what has been previously possible. With recent breakthrough in dendrochronological dating of later prehistoric structures in Scotland it is now possible to approach issues of structural duration on a human scale, meaning that models for the Iron Age societies that lived in these lake settlements can be constructed to a level of detail never previously possible. This paper will present the archaeology of the Black Loch Village recorded so far, and consider the hypotheses that will be tested through the multidisciplinary palaeoenvironmental techniques used by the Celtic Crannogs project.

TH5-16 Abstract 07
Investigating Iron Age lakeside settlements within their palaeoenvironmental context
Author - Dr. Davies, Kimberley, Plymouth University, Plymouth, United Kingdom (Presenting author)
Co-author(s) - Dr. Whitehouse, Nicola, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Professor Langdon, Peter, University of Southampston, United Kingdom
Co-author(s) - Allison, Emid, Canterbury Archaeological Trust, Canterbury, United Kingdom
Co-author(s) - Professor Brown, Tony, University of Southampston, United Kingdom
Presentation Preference - Oral
Palaeoenvironmental methods offer the opportunity of retrieving information from a range of proxies around lakeside settlement usage that would otherwise be difficult to obtain without excavation and can augment studies where excavation is possible. These methods also allow us to place these sites within a wider environmental context which can aid our understanding of local and regional conditions across the time period in question. Sediments are retrieved both on and adjacent to, these structures and can be analysed for ecological, biological and environmental data.

Here, we present palaeoentomological data, in particular Coleoptera (beetles) and Chironomidae (non-biting midges), from archaeological excavation deposits and parallel lake core sediments from Black Loch of Myrton, Scotland. This Iron Age lochside settlement consists of a small number of structures constructed on peat/fen material at the margins of a small, productive loch. The main aim of the work is to inform our understanding of living conditions on the site, any associated impacts upon the nearby lake system and explore the wider implications for our understanding of lakeside settlements of this period. Beetle remains provide an understanding of both the environmental conditions across the site and on-site activities. Activities indicate beetle and fly remain, ectoparasites (e.g. fleas), characteristic of decomposing floor litter layers and less than salubrious living conditions. Direct evidence 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 over-view of living conditions associated with these types of sites.

The results of the work form part of a larger project that uses survey, palaeoentomological, biogeochemical and d18O analyses to study crannog and lakeside sites across Ireland and Scotland to study patterns in construction, function and longevity of these monuments, across wider geographical scales. The Celtic Connections and Crannogs project, funded by AHRC, sets out to re-examine crannogs as both a cultural and environmental phenomenon that link Iron Age and Medieval communities of SW Scotland and N Ireland.

TH5-16 Abstract 08
How could Crannogs impact on lake environments?
Author - Dr. Van Hardenbroek, Maarten, University of Southampston, United Kingdom (Presenting author)
Co-author(s) - Cavers, Graeme, AOC Archaeology Group, Midlothian, United Kingdom
Co-author(s) - Crane, Anne, AOC Archaeology Group, Midlothian, United Kingdom
Co-author(s) - Davies, Kim, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Fonville, Thierry, University of Southampston, United Kingdom
Co-author(s) - Henderson, Andy, University of Newcastle, Newcastle-upon-Tyne, United Kingdom
Co-author(s) - Hicks, Matt, University of Southampton, Southampton, United Kingdom
Co-author(s) - Langton, Pete, University of Southampton, Southampton, United Kingdom
Co-author(s) - Mackay, Helen, University of Newcastle, Newcastle-upon-Tyne, United Kingdom
Co-author(s) - Matton, Rachael, University of Southampton, Southampton, United Kingdom
Co-author(s) - McCormick, Fiona, University of Southampston, United Kingdom
Co-author(s) - Murray, Emily, Queen’s University Belfast, Belfast, United Kingdom
Co-author(s) - Whitehouse, Nicki, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Brown, Tony, University of Southampston, Southampton, United Kingdom
Co-author(s) - Whitehouse, N. J., School of Geography, Earth and Environmental Sciences, Queen’s University Belfast, Belfast, United Kingdom
Co-author(s) - Hill, Geoffrey E., School of Geography, Archaeology & Palaeoecology, Queen’s University Belfast, Belfast, United Kingdom
Co-author(s) - Whitehouse, N. J., School of Geography, Earth and Environmental Sciences, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Frederengen, C., Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden
Co-author(s) - Frederengen, C., Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden
Keywords: crannog, sediment, wetland
Presentation Preference - Oral
Crannogs, or artificial islands, were constructed during the Iron Age to Medieval period throughout Scotland and Ireland. At least 1500 crannogs are recognised, but little is known about their longevity and continuity of use, and they are difficult and expensive to excavate. An alternative, or 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 X-ray fluorescence (XRF) to highlight input of clay, gravel, and stones from crannog construction.

Increased loading of heavy metals (Cu, Zn) might be related to metalworking on crannogs. In addition, the analysis of pollen, invertebrates, and ancient DNA, will provide insights into land use around the lakes and the conditions on the crannogs themselves. Changes in C/N ratios, diatoms, biogenic silica, and invertebrates will demonstrate how crannog construction and use are driving changes in lake environments. Preliminary results indicate that XRF data (Cu, Ti, Zn) corroborate sediment stratigraphy and can be used to distinguish periods of crannog construction and use. In one of the sites, Lough Yoan, diatom assemblages indicate a substantial increase of nutrients during this period. The increased variety of submerged substrates due to crannog building also led to a more diverse cladoceran assemblage.

TH5-16 Abstract 09
From the lakeshore: settlement and technology in the later Mesolithic
Author - Hill, Geoffrey E., School of Geography, Archaeology & Palaeoecology, Queen’s University Belfast, Belfast, United Kingdom (Presenting author)
Co-author(s) - Whitehouse, N. J., School of Geography, Earth and Environmental Sciences, Plymouth University, Plymouth, United Kingdom
Co-author(s) - Frederengen, C., Archaeological Research Laboratory, Stockholm University, Stockholm, Sweden
Keywords: Lough Kinale; crannog; beetles
Presentation Preference - Oral
Excavations undertaken under the aegis of the Discovery Programme, Dublin (www.discoveryprogramme.ie) between 2013 and 2015 on the shores of Lough Kinale, Co. Longford, Republic of Ireland, uncovered a well preserved Late Mesolithic (c. 5500-4500 cal BC) platform crannog.

This lake-side site is one of very few wetland archaeological occupation sites in Ireland that extends over the Mesolithic-Newolithic 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 (Frederengen, 2010). Bioarchaeological investigations of the site have been undertaken as part of a DEL NI funded PhD research project. Results from fossil beetles and dung fungal spore analyses suggest the presence of structures maintained over the Late Mesolithic phases of the site’s usage. Synanthropic beetles typically associated with thatching and/or bedding materials indicate the persistence of dry, sheltered areas across the site. This evidence is significant and challenges assumptions about the nature of Late Mesolithic settlement in Ireland (Woodman, 2000). Analysis of coprophagous spores reveal the presence of the dung of grazing animals within several specific contexts over the same period. This is intriguing given the apparent absence of large grazing herbivores in Ireland prior to their introduction during the Neolithic. The ‘platform crannog’ appears to have been a well-maintained site occupied on a seasonal or returning 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-Newolithic transition in Ireland as well as broader debates around the origins of the synanthropic fauna.
TH5-16 Abstract 10

Insights into the occupation of a Scottish Iron Age wetland village using organic geochemistry

Author - Dr. Mackay, Helen, Newcastle University, Newcastle Upon Tyne, United Kingdom (Presenting author)
Co-author(s) - Henderson, Andrew, Newcastle University, Newcastle Upon Tyne, United Kingdom
Co-author(s) - Van Hardenbroek, Maarten, University of Southampton, Southampton, United Kingdom
Co-author(s) - Brown, Tony, University of Southampton, Southampton, United Kingdom

Keywords: Human-environment interactions, Organic geochemistry, Wetland settlement

Presentation Preference - Oral

The first wetland village discovered in Scotland – Black Loch of Myrton, exhibits excellent preservation of early Iron Age life. It is therefore an excellent opportunity to explore how Celtic people lived and interacted with their environment. This study uses organic geochemistry to answer key questions about the settlement: how many construction and occupation phases occurred? What activities took place and how did they vary over time?

We reconstruct environmental conditions during village development using lipid biomarkers, organic molecular fossils that can be traced back to known biological precursors, and carbon isotopes from a sediment core recovered from the centre of the wetland. These results are compared with other regional climatic reconstructions to explore the role prevailing environmental conditions had on the start of the roundhouse construction and the demise of the village. Human-environment interactions within the wetland are assessed using biogenic silica concentrations, a measure of the abundance of the siliceous primary producers within the ecosystem, which reveal overall changes in aquatic productivity. The extent to which these changes can be attributed to the addition of nutrients from human and animal waste and changes in land use practices is currently being investigated by quantifying sterols, a group of biomarkers that are characteristic of faecal matter input. In addition, a suite of lipids biomarkers taken from a sediment core from within the roundhouse provides insight into Iron Age activities by using pyrolytic polymeric aromatic hydrocarbons to reveal fire regimes, n-alkanes to suggest changes in the surrounding vegetative landscape and cropping practices, and faecal steroids and bile acids to indicate the presence of animals within the roundhouses. Changes in the intensities of these activities and the amount of human faecal input reveal how the wetland village dynamics and uses altered over time. Combining these organic geochemical analyses with archaeological investigations provides a more holistic site interpretation and, when compared with other Celtic Iron Age sites, helps to build a clearer picture of societal functioning and change over this time period.

TH5-16 Abstract 11

Lake sediment DNA to trace past landscape and agricultural activities: the importance of taphonomy

Author - Dr. Giguet-Covex, Charline, University of York, York, United Kingdom (Presenting author)
Co-author(s) - Ficetola, Francesco Gentile, LECA, Grenoble, France
Co-author(s) - Walsh, Kevin, James, University of York, York, United Kingdom
Co-author(s) - van Hardenbroek, Maarten, University of Southampton, Southampton, United Kingdom
Co-author(s) - Brown, Tony, University of Southampton, Southampton, United Kingdom

Keywords: Agriculture, lake sediment DNA, taphonomy

Presentation Preference - Oral

During the last decade, an increasing number of studies were interested in the use of lake sediment DNA to trace past landscape changes (plant DNA); agricultural activities (plant, mammal and bacteria DNA) as well as the human presence (human-specific bacteria DNA). However, as all sedimentologists know, the sedimentation in a lake can vary temporality and spatially depending of the variations of processes at the origin of the sediment formation. Moreover, depending on the geological, topographical, climatic and ecological contexts, the sedimentation can be very different from a lake to another. These lake sediments characteristics might affect the aDNA archiving in a various ways including potential biases related to both, the taphonomic processes (DNA source, transfer and deposit) and the analytical process. Consequently, it is now crucial to study these processes to ensure reliable interpretations of the lake sediment DNA results and to improve its potential for palaeoenvironmentalists, archaeologists and historians. In this aim, we combined sedimentological/geochronological analyses with DNA metabarcoding analyses (focused on plants and mammals) on three different mountain lake-catchment systems in the Alps (different relative to their physico-chemical and biological characteristics). We showed the extracellular aDNA retrieved from the sediment mainly comes from upper soil horizons and is transported to the lake being fixed into/to soil particles. Lakes with high detrital inputs are thus more suitable to archive terrestrial DNA than lakes dominated by autochthonous sedimentation. Furthermore, the hydrographical web has to be well developed to provide a good spatial representativeness of possible plant patches in the catchment. Specific chemical/biological conditions affecting aDNA preservation and/or analysis success were also proposed as explanation for the non-detection of aDNA in one of the lakes. Other less predictable factors, e.g. pastoral practices and animal behaviour, also affect the archiving of aDNA from domestic animals. In particular, determining the type of source of DNA (“point” vs “diffuse”), these factors will affect the detection probability of the animals. All the factors affecting the aDNA record in lake sediments can change over time and can thus significantly affect the reconstructions of plant cover and livestock farming/pasturing histories.
Presentation Preference - Oral

In this manner, a more comprehensive image regarding the cultural and social status of Bronze Age individuals from the southeastern part of Romania, a geographic region that is scarcely represented by genetic data in scientific literature, can be gleaned. Integrating present genetic results for representatives of this population with their contemporaries from other geographic locations may reveal genetic links associated to migratory events. First insights on burial ritual and funerary inventory of these individuals indicate that they are most likely associated with Yemaya culture, while the radiocarbon analyses of one individual 'centrally located' in the tumulus show that it dates to 2620-2470 BC. The molecular data at date reveal the presence of at least two distinct maternal lineages in this population, in most cases rare haplotypes for the modern day European population. These results are part of an ongoing project and a future point of concern is to assess the genetic relationship between this Bronze Age population and one dated to the pre-modern period discovered in the same geographic area.

This study was supported by funding from the project Genetic Evolution: New Evidence for the Study of Interconnected Structures (GENESIS). A Biomolecular Journey around the Carpathians from Ancient to Medieval Times. (CNSIS/UFESCD/PHN_PCCA_1153/2011).

TH5-17 Abstract 04

Scandinavian Bronze Age rituals, and their Indo-European background

Author - Prof. Anders, Kalff, Uppsala University, Uppsala, Sweden (Presenting author)
Keywords: burial ruiual, Cremation, Cosmology, Indo-European, Religion, Ritual, Sacrifice
Presentation Preference - Oral

In my research I try to interpret remains of ancient Scandinavian ritual, against a larger Indo-European background. Like the Indo-European languages, is also Indo-European religion an old concept, first constructed in the 1800s, when the comparative study of religion emerged as a method. It seemed to be basic features that recurcd in the religions practiced by different peoples who spoke Indo-European languages, and that parallel to language, important elements of religious beliefs, myths and rituals could also be preserved over time.

In the last few years, there has been a very rapid development in the field of ancient DNA that has revolutionized the question of Indo-European migration in prehistory. The question is no longer whether there is a connection between early Indo-European peoples, but how complex the relationships are and how they occurred. In 2014 and 2015 came finally the first really convincing DNA studies regarding the ancient Indo-Europeans, results that fully support the ideas of Indo-European spread by migration. Far hundred percent proof that this migration really brought languages, is missing still, of course, but it could be assumed with almost certainty. According to the hypothesis I try to test in my research, essential features of mythology and ritual was also spread in this period.

The homology of the creation myths is one such basic cosmological idea. The concept of homology here refers to the idea that similar texts that have never been transmitted to each other across long distances, should have been created independently at the same time. The theory of homology is based on the idea that certain elements of religious beliefs, myths and rituals could be preserved over time.

The theory of homology is based on the idea that certain elements of religious beliefs, myths and rituals could be preserved over time.

As a consequence, these ancient DNA results have direct implications for the spread of Indo-European language groups and at the boundaries 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 homoty 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 (Zoroastian) 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. Bandelli, Giuliana, Università Cattolica del sacro Cuore Milano, Milano, Italy (Presenting author)

**Keywords**: Bronze age, Homer, Metal working around the Baltic Sea

**Presentation Preference** - Oral

According to a recent challenging hypothesis by the scholar Felice Vinci, the real setting of the Iliad and the Odyssey can be identified not as the Mediterranean Sea, where it proves to be undermined by many incongruities, but rather in the North of Europe. The sagas that gave rise to the two poems came from the Baltic regions, where the Bronze Age flourished in the second millennium B.C. and where many Homeric places (Troy, Ithaca, Fair) along with Ulysses’ wanderings can still be identified today. Moreover, this archaic Greek civilization extended on all the Baltic coasts, such as, for instance, along the Swedish coasts, where today’s Bay of Bothnia is the ancient Aulis, where the Achaean fleet, gathered before sailing for Troy. As regards the Baltic Republics (Estonia, Latvia, Lithuania) there are many convergences with Greek mythology. The blond Achaean who founded the Mycenaean civilization in the Aegean in the 16th century B.C. brought these tales from Scandnavia to Greece after the end of the “post-glacial climatic optimum”. They then rebuilt their original world – where the Trojan War and many other mythological events had taken place – farther south in Mediterranean waters, transferring significant names from north to south. Through many generations, they preserved the memory of the heroic age and the feats performed by their ancestors in their lost homeland, and this oral tradition was put in writing around the 8th century BC, when the alphabetical writing was introduced in Greece. According to Felice Vinci’s theory, both the Homeric poems and the rest of Greek mythology are the last memory of the feats and events happened in the lost Nordic homeland of their Achaean ancestors, before they moved towards the South of Europe. This new perspective conforms to the most recent views of archaeology: the “radiocarbon revolution”, based upon radiocarbon dating, adjusted with dendrochronology, has backdated of many centuries the rise and development of the European Bronze Age and, on the other hand, a very ancient city, dating back to the third millennium BC, was recently found by Swedish archaeologists in the site of Bjästamon, near Hernosand.

---

**TH5-17 Abstract 06**

**The Settlement System of Pit-Grave Culture of Central Ukraine**

**Author** - Synoval, Mykhaylo, Cherkesky Archaeological Museum, Cherkesky, Ukraine (Presenting author)

**Keywords**: Settlement System, Site, Culture, Chronology, Settlement System, Site, Culture, Chronology, Settlement System, Site, Culture, Chronology

**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 (Daisatyyn). It belongs to the most widespread type: 1) the settlements on small (0.5-1 ha) sites (or perimeters) in wide floodplains of the Dnieper River and its tributaries. The Daisatyyn 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: 2) in floodplain inlets/peninsulas (often near basic settlements) and under the conditions of high topography; 2b) at the tops of watersheds but next to a water source; 2c) on the high bank terrace of small rivers of the 2nd and 3rd order; 2d) in the low promontories of small rivers. The last subtypes are known in a number of other territorial variants of PA 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 practised transhumance, insignificantly complementing their diet with the help of fishing, hunting and food gathering. The vast majority of the population lived in basic settlements, located on the floodplain inlets in collectives of 50 to 100 persons (and 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 kilometermas, while women, children and old people remained in the basic settlements.
smaller innovations or gradual local changes played the main role in the cultural transformation of a very wide region (Barkoff & Winter 1999, 175). However after 3000 BCE a new type of sites and artifacts appeared in the Baltic Region. On the basis of these radical changes in material culture one can claim that almost all aspects of human life, social, ideological and economic has changed radically. After a recent studies of ancient DNA (Allentoft et al. 2015; Haak et al. 2015) a new important data were added to old debates of linguists and archaeologists.

The aim of the paper is to compare archaeological data of Corded Ware and post Corded Ware people from the East Baltic Region to the data of Pontic-Caspian steppes, and to try to find traces of cultural influences. A new DNA discoveries will be used as well.

However, in order to understand the cultural and linguistic processes that allowed the introduction of an entirely new language family it is important also to consider the long gone predecessor of Indo-European. This extinct language we refer to as “Proto-Neolithic”. Did this unknown language for human life contribute to the new Indo-European language? Did it help to form the basis for the vast majority of modern European languages? One further aspect is where we should place the language spoken by the Pitted Ware people and furthermore if it had any impact on the larger language development. Do we still carry relics with us in modern Germanic that can be traced down to the Proto-Neolithic language spoken by the Funnel Beaker farmers – and perhaps even also elements of a Pitted Ware language?

Visitors from the Steppes. The Scandinavian perspective

Author - Prof. Randi Borg, Klaes, University of Copenhagen, Copenhagen, Denmark (Presenting author)

Keywords: Neolithic, Scandinavia, Stepe contacts

Presentation Preference - Oral

The archaeological interest in the Steppes has deep roots, including hypotheses about an eastern origin of the Corded Ware Culture, supposed migrations of the same, and even the introduction of the Indo-European languages, as suggested by G. Childe in the 1920s and later on elaborated by M. Gimbuta (Gimbüze, 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 view throughout the 1980s was that the first Indo-European languages arrived with and developed in Europe in the first people carrying Neolithic farming and rearing of domesticated animals (Renfrew 1987). This idea has a ring of simplicity about it when correlated with the basics of archaeology: Neolithic expansion from the Near East and Anatolia to southeast Europe extended to Central Europe and later to on the North, with a parallel Neolithic expansion from Anatolia to the Mediterranean and on to Western Europe.

The paper examines the archaeological elements of possible Stepe origins in Scandinavian Neolithic and how these correlate with the aDNA findings.

The introduction of Indo-European in the later South Scandinavian Neolithic

Author - PhD Larsen, Rune, University of Copenhagen, Copenhagen, Denmark (Presenting author)

Co-author(s): Krommen, Guss, University of Copenhagen, Copenhagen, Denmark

Keywords: Corded Ware, Indo-European, Proto-Neolithic

Presentation Preference - Oral

With the exception of Basque, Finnish, Estonian, and Hungarian, the modern linguistic landscape of Europe is almost entirely shaped by a single language family: Indo-European. This perhaps surprising linguistic unity is likely the result of a prehistoric cultural expansion that erased almost all previous languages. By the dawn of history, Europe had at any rate become covered by a patchwork of Indo-European dialects - that is Germanic, Baltic, Illyric, Slavic, Albanian, Armenian, and Greek. These formed the seeds from which grew the modern European languages, such as 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 third millennium B.C.E. In southern Scandinavia the first agrarian culture, the Funnel Beaker culture, came to an end overlapping with the emergence of “sub-Neolithic” Pitted Ware influences that reached the northern and eastern coastal areas of present-day Denmark from the Scandinavian Peninsula. From around 2850 B.C.E early Corded Ware (Single Groove) 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 the 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.

Linguistics and archaeology: A reassessment of the Indo-European homeland problem

Author - Dr. Olander, Thomas, University of Copenhagen, Copenhagen S, Denmark (Presenting author)

Keywords: Indo-European homeland, Indo-European languages, Linguistics

Presentation Preference - Oral

When searching for the so-called Indo-European homeland – the place from which the Indo-European languages spread at some point in prehistory – there is a discrepancy between the opinions of archaeologists and historical linguists. Different methodologies in the two fields lead to preferences for different scenarios.

Popular among archaeologists is the “Anatolian hypothesis”, which locates the Indo-European homeland in Anatolia around 6500 BCE 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 motivation 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 steppes 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 aims to look at the linguistic evidence on the time and location of the Indo-European expansion, focusing on the methodological questions that have frequently given rise to misunderstandings between historical linguists and archaeologists.

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 (Proto-Indo-European) in an original homeland (Uroheim), 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 warring between three main contradictory geographical explanations with no possibility of reconstructing with certainty the suggested routes which might have led Indo-European speakers from an original homeland to their various historically attested settlement locations. This is why we are entitled to question the underlying canonical model as an alternative origin myth to the Bible, while at the same time seeking more complex explanatory models.
TH5-17 Abstract 14
DNA Analysis of Late Bronze Age Funerary Context from Eastern Romania

Author: Professor Bolohan, Neculai, Alexandru Ioan Cuza University of Iasi, Iasi, Romania (Presenting author)
Co-author(s): Ciorpac, Mitic, Alexandru Ioan Cuza University of Iasi, Iasi, Romania
Co-author(s): Mijlo, Florica, Alexandru Ioan Cuza University of Iasi, Iasi, Romania
Co-author(s): Gorgan, Drago Lucian, Alexandru Ioan Cuza University of Iasi, Iasi, Romania
Keywords: aDNA, Eastern Romania, Late Bronze Age

The aim of this study is to analyze the ancient DNA and to identify the haplogroup, presenting also the first results obtained on samples extracted from a Late Bronze Age funerary context discovered in Eastern Romania and to identify an efficient and reliable protocol for aDNA extraction. To test whether the protocol is efficient and capable of yielding good quality DNA, extraction was first performed by using the phenol:chloroform protocol and DNA IQ protocols. The funerary context from Tarnia, Bacau county, was discovered in 1972 and consists in a pit in which was discovered a human skeleton in a left supine position. The left hand was flexed and sustain the skull while the right hand was flexed and slightly lodged on the pelvis and the legs were strongly bent on the left side. The osteological remains were in a poor state of preservation. The burial contains two vessels as grave goods which were attributed based on their typological characteristics to the Noua culture (Late Bronze Age).

The sequences were subjected to Nucleotide BLAST (Basic Local Alignment Search Tool, Altschul et al, 1990) to identify the similarities with the previous sequences from data base and haplogroup assignation. The T72 sample shown an identity of 97% with HV1 sequences from a previous study conducted by Lippold et al., 2014. According to Eupedia database, Haplogroup T is composed of two main branches T1 and T2 and the both of them have very different distributions, which are diametrically opposed in most regions. Furthermore, the T72 sequence was aligned with haplogroup T sequences from NCBI and used to construct a ML tree, in order to identify the haplogroup assignation.

TH5-17 Abstract 15
Circadian rhythms, moods, and Neanderthals: testing a biological explanation for behaviour

Author: Pazan, Kyra, Ann Arbor, United States of America (Presenting author)
Keywords: energetics, genetics, Neanderthals

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.

TH6-01  TIES THAT BIND. RELATIONSHIPS BETWEEN THE MOVEMENT OF RAW MATERIALS AND THE MOVEMENT OF ARTISANAL KNOWLEDGE ACROSS EUROPE 2000-1500 BC

Saturday, 3 September 2016, 14:00-18:30
Faculty of History, Room 214th

Author - Olausson, Deborah, Lund University, Lund, Sweden (Presenting author)
Co-author(s) - Andersson Brand, Eva, The Danish National Research Foundation’s Centre for Textile Research, Copenhagen, Denmark

Keywords: artisanal knowledge, raw material, skeuomorphism
Presentation Preference - Regular session

Recent developments in proveniencing methods, in particular analyses of stable isotopes, have provided new insights into the movement of materials such as copper ore, wool and amber on the European continent during the dynamic 21st – 16th centuries BC. Today we are able to demonstrate that materials moved from A to B, but the maps fraught with arrows tell us little about what happens in the receiving context. In this session we would like to explore the implications of raw material movement from the perspective of the local artisans. How does the introduction of a new and previously unknown raw material, or objects made from that raw material, affect local artisans, who in many cases lack knowledge about how to manipulate it? One response visible in the archaeological record is skeuomorphism, where local artisans, lacking adequate access to the new material, imitate foreign forms in locally available raw material. This is often interpreted as an attempt to block the influx of new materials seen as a threat by local artisans. Another possible response for the local artisan is to gain the necessary knowledge in order to be able to manipulate the new material himself/herself. A third possibility is that the new raw material is accompanied by artisans who are already familiar with its properties. As raw material movement affects the whole continent, we hope to attract scholars from north to south and from east to west. We would like to gather concrete examples of the three possible responses we outline above, but welcome other possibilities as well.

TH6-01 Abstract 01
The introduction of metals and metalworking in Sicily

Author - Dr. Vianello, Andrea, Sheffield, United Kingdom (Presenting author)
Keywords: artisans, Italy, metals
Presentation Preference - Oral

Metallurgy was introduced very late in southern Italy, with copper becoming present in the archaeological record with some regularity only in the local Middle Bronze Age. There is a very slow process of introduction of metals that started during the Copper Age, when metallurgy was already developed in northern Italy. Evidence of metalworking is exceedingly rare, with few sites yielding any such evidence until the Middle Bronze Age. There are few mines in the area, mostly in nearby Calabria and only one possible in Sicily. Chemical analyses carried out with a pXRF have demonstrated that the early metals were copper and bronze alloys made with the content of natural ore of copper mines and only later tin was introduced. The limited evidence has been poorly studied, with the main theory remaining for long that artisans from the Aegean developed metals.

In this presentation I aim to assess the development of local metallurgy, focusing on alloys and any technological clue present in the archaeological record, in order to understand the role of local artisans in introducing metals in the region. The preliminary results show that the lack of raw material locally could have played some role in delaying access to the new material, but the most likely reason is some form of control of the new technology, which may be deliberate or accidental. There is no evidence of traveling artisans that could spread the technology or produce demand for the new material by making it known, and Sicily being a large island at short distance from the mainland, it ended up fully embracing the technology unusually late in spite of the raw material circulating and being mined not far from it. This case study therefore reveals how the movement of artisans, and their technological know-how, was far more important than the availability of the raw materials in the vicinity: you cannot make metal artifacts if you do not know how.

TH6 Archaelogy without borders
Production of Encrusted Ceramics in the Carpathian Basin

The Settlement Aglomeration in Mikulovice, Eastern Bohemia

Age cultural groups in the Carpathian Basin.

this variation in terms of small-scale responses to a wider regional aesthetic - how to make the colour white - in a range of Bronze

an important, long-standing tradition that transcends individual cultural units. However, although encrusted ceramics ostensibly

- Oral

Local Responses to a Regional Aesthetic.

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 intensively discussed throughout Europe. The newly excavated Early Bronze Age inhumation cemetery with approximately 100 graves in Mikulovice (eastern Bohemia) at which 30 % of the graves contain imported "exotics" - Oral

In addition to a complex analysis of the cemetery, a hypothesis should be verified, that the analyses of skeletons and artefacts from the cemetery situated on the "Amber Road" should reflect the anticipated greater mobility, long-distant contacts and a higher living standard of the members of the local population. Without doubt, this offers an opportunity for a comprehensive study of the significant settlement agglomeration along a prominent long-distance route and gives us chance to join actively the highly current discussion.

Keywords:
amber, manufacturing, Mycenaean culture

- Oral

Recent research has clearly demonstrated that the movement of textiles and specific textile raw materials in northern Europe is more complex than hitherto known. Analyses have indicated that some wool in Scandinavian Bronze Age textiles is not local, coming from outside present Denmark (Fri et al. 2015). It is likely that already in that period wool was being exchanged in Northern Europe, and trade in textiles and wool is well known in the Eastern Mediterranean in much earlier periods (e.g. Michel and Nosch 2017). However, the demand for a new raw material only arises to meet a need and desire in society. Use of a new textile raw material would, furthermore, require new artisanal knowledge. In this paper we will, from a conceptual perspective, discuss the implications of this with regard to textile fibres and cloth cultures in European societies.

- Oral

What/who moved? Amber in Mycenaean World

What's new? The first bronzesmiths in southern Scandinavia

Understanding Bronze Age Life– from an Artisanal Perspective

There are traces of communication in ancient artefacts and craft materials. Often archaeologists are interpreting this as results from trading or import. The question for this paper is to explore and understand how the ancient artisan reacted and used new ways of working and new ways of thinking in connection to "moving artisans and crafts knowledge". Præstegård area in the South East of Sweden bear traces of distant artisanal communications and could be described as a node for new expressions and techniques in the Late Bronze Age. The question of craftspeople and their role in prehistory has been discussed in many different ways and from different theoretical perspectives. In my thesis The Artisanal perspective-an archaeology in practice (2016) I have described how artisanship can be the reason for moving material and or techniques around large geographical distances. Learning and sharing knowledge develops new links between people. These circumstances might be the departure for ancient artisans to leave the known area and try new paths.

I use and widen artisanal knowledge to interpret artefacts based on my own tacit knowledge as an educated professional ceramist and archaeologist. In other crafts I collaborate with skilled artisans as expertise to extract valuable knowledge that gives a good base for archaeological synthesis concerning crafting issues.
The interplay between technology and geography in the development of trade networks

Author: Prof. Rivers, Ray, Imperial College London, London, United Kingdom (Presenting author)
Co-author(s): Evans, Tim, Imperial College London, London, United Kingdom

Keywords: geography, networks, technology

Presentation Preference – Oral

The archaeological record shows that artefacts have been exchanged over huge distances at times in the distant past when such exchange must have been very difficult. In this paper we attempt to describe how these isolated and intermittent interactions can evolve into established trade networks.

Trade implies organised exchange in sufficient volume to provide a definable pattern. Most simply, the ability to conduct trade encodes two very different ‘distance’ scales: the ‘distances’ that traders need to traverse in order for the network to be robust (e.g., well-connected) and the ‘distances’ for which the available technologies permit the ready transportation of goods. As 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, sails) 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 Urals is connected with the Late Bronze Age. The study of settlements and funerary monuments of the Late Bronze Age in this area gave massive material on bronze production in the region (waste products, casting molds, copper drops and ingots, particles of copper ore, containers with traces of waste products) and also numerous products made of bronze (knives, chisels, aels, hoolids for vessels, sickles, ornaments and so on). E. Chernykh distinguished in this area a group of population in the southern Urals: Srubnaya and Andronovskaya (Alakulskaya) cultures. In Bashkir Urals, in the area between the rivers Duma and Usharah, Kazburovsky archaeological micro-district belonging to the late Bronze Age is distinguished. There is a group of five settlements and 4 barrow burials here. In the process of investigation the complex of sites consisting of five simultaneous settlements - Usmanovo I - III settlements, Muradymovo I, VII, VIII settlements and 57 Kazburun barrows was examined. Radiocarbon dating (Beta Analytic: 1890 – 1750 BC), proved chronological unity of these barrows and settlements. Numerous traces of bronze production were also found on the territory of Kazburun district. In Bashkir Urals, close to Kargaly mines, there are 770 mines for the extraction of copper sandstones. V. Lunkov (Laboratory of Naturally Scientific Methods, Institute of Archeology, RAS, Moscow) and M. Radivojević (Jesus College Research Fellow McDonald Institute for Archaeological Research) carried out a complex of analyses of all bronze material belonging to one of the large settlements – Muradymovo settlement (Kazburovsky archeological district). Metal was worked on this site – refining, melting, casting. The primary (Cu) metal could have been imported from other regions as raw ingots (bars) artefacts. The provenance analysis imply that the metal worked in the site of Muradymovo settlement was likely acquired from the ores exploited in the Tien Shan mountains. The UCL and RAS analyses show that there is a significant number of pure copper artefacts that represent stock, ingots, working debris. The pure copper artefacts as implements (knives, etc.) need a closer look typologically etc. (RAN analyses). The tin bronzes are already present as finished artefacts and there is no evidence for their production thus far in this site. Due to the research, a new interesting problem in Bashkir Urals archeology came up. Having a large number of copper sandstones and mines, developed in the Late Bronze Age (Kargainskiye 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 Eek River in the area of 16379 square km were examined. Paleo-genetic studies have identified several groups in Kazburovsk archeological micro-district. Probably in the late Bronze Age the ore came with population of Andronovskaya (Alakulskaya) culture of South-Eastern Kazakhstan. This confirms the theory of E. Chernykh about the unity of West-Asian Metallurgical Province.
BLURRED BORDERS?
MAKING POTTERY AND CULTURAL INTERACTION IN NEOLITHIC AND ENEOLITHIC EUROPE

Friday, 2 September 2016, 09:00-16:00
Faculty of Philosophy, Room 307

Author - Spataro, Michela, The British Museum, London, United Kingdom (Presenting author)
Co-author(s) - Hofmann, Robert, Christian-Albrechts-Universität zu Kiel, Institute of Prehistoric & Protohistory, Kiel, Germany
Co-author(s) - Vukovic, Jasna, Faculty of Philosophy, Department of Archaeology University of Belgrade, Belgrade, Serbia
Keywords: ceramics, cultural interaction, Neolithic and Eneolithic Europe
Presentation Preference - Workshop

Pottery’s unlimited potential to express variation in style has revealed a complex mosaic of regional traditions across prehistoric Europe, which archaeologists have used to differentiate material cultures geographically and to build chronological sequences. The Neolithic and Copper Ages are understood primarily through analysis of ceramic ornamentation. One outcome is that we may also identify assemblages that are recognisably mixed, when characteristic artefacts of more than one material culture co-occur simultaneously.

This session brings together examples of culturally mixed Neolithic and Eneolithic assemblages from throughout Europe, to map their occurrence and discuss how they are interpreted, and what opportunities and difficulties arise when studying mixed assemblages. Issues such as trade, imitation, migration and conflict arise, but also national research traditions. For example, are mixed assemblages studied primarily to support chronological correlations, to investigate long-distance movements of people or materials, or, using historic or ethnographic analogies of cultural interaction, to study dynamics of cultural integration and differentiation? What are the common features of mixed assemblages? Do they represent ephemeral or ongoing contacts between cultures? Does one culture eventually replace the other, or does hybridisation emerge? Can we study interaction between locals or materials, or, using historic or ethnographic analogies of cultural interaction, to study dynamics of cultural integration and differentiation?

The research presented here focuses on the following issues: 1) identification of areas in the Middle Povolžie and Prikamye with early pottery traditions, 2) establishing chronological frameworks using radiocarbon dating of pottery, 3) definition of the relations between the Neolithic cultural groups of Volga-Kama. The methods used to achieve these objectives are: 1) morphological grouping of pottery based on the ornamentation technique, 2) radiocarbon dating, and 3) technological analysis of pottery (Bobrinsky, 1999).

The study of the ancient Volga-Kama pottery revealed areas with two types of pottery raw materials: silty clay rich in sand in the Middle Povolžie and plastic clay tempered with chamois in the Prikamye region (Vybomov, Vajylavéa, 2013). Flatt-bottomed prickled pottery is present in the Middle Povolžie in the early Neolithic period (5500 cal BC). It is all made of silty clay when still plain.

Round-bottomed comb-ornamented pottery of the local Kama culture is present in the Middle Prikamye in the early Neolithic period (3300 cal BC). It is only made of clay tempered with chamois. The raw material was milled in a dry form.

Comb-ornamented pottery was introduced from the Prikamye culture to the Middle Povolžie at a later period (5000 cal BC). The proportion of local prickled pottery made of clay and chamois increases to 15%. Kama comb-ornamented pottery made of clay tempered with chamois does not exceed 10% further to the west (Marjukyshke Povolžie, Primokshanye, and Posuye). The rest of the ceramics were made of silty clays. This recipe (clay and silt) is typical for the prickled pottery from the forest-steppe of the Middle Povolžie.

Prickled-ornamented pottery is found from the Middle Povolžie to Prikamye at around 5000 cal BC. The percentage of comb pottery made of clay with chamois decreases to 70%, whereas 35% of comb-ornamented pottery is made of silty clay, following the recipe typical for prickled pottery of the Middle Povolžie. Among prickled pottery of the Middle Povolžie type, the proportion tempered with chamois, which is used to make comb pottery found in the forest of Prikamye, increases to 50%.

At a later stage (4500 cal BC) comb pottery made of plastic clay and chamois represents 70% of the ceramics in the Prikamye region, and in the Middle Povolžie comb pottery began to be produced with silty clay. This suggests a complete change of the idea of raw materials used by the communities of the Kama culture. The results indicate the long duration of the mixing process between the Middle Povolžie population with comb pottery and different cultural groups. This demonstrates the coexistence, interaction and blend of different pottery traditions. Full transformation of ideas about raw material could occur during 5-6 generations of potters. In addition, each new generation had contacts with communities with other technological traditions of pottery making (Bobrinsky, 1978). Thus, the study of the Neolithic pottery technology and its radiocarbon dating allows us to reconstruct the important processes of cultural character.

The work is performed for the project 33.1195.2014/k

TH6-03 Abstract 02

The Neolithic Volga-Kama pottery as a source of reconstruction of cultural interactions

Author - Prof. Vybornov, Aleksandr, Samara State Teachers Training University, Samara, Russian Federation (Presenting author)
Co-author(s) - Vasilieva, Irina, Samara State Teachers Training University, Samara, Russian Federation
Keywords: pottery, technological analysis, Volga
Presentation Preference - Oral

The ceramic chânes opératoires, defined as a series of operations which transforms raw material into finished products, is a particular relevant signal for tracing and identifying histories of transmission. Explanations have been found in the learning process. It has been demonstrated that learning involves a tutor and a model. At the end of the learning process the learned skills are literally embodied. At the collective level transmission occurs within groups made up of individuals linked by social ties. These ties determine the social perimeter into which ways of doing are transmitted. As a result of these learning processes it appears that: a) the chânes opératoires are by excellence inherited ways of doing transmitted through successive generations, b) changes within chânes opératoires express cultures’ histories and the factors affecting them. In the latter case, evolution of technological behaviours can be generated through endogenous processes (or phylogeny) resulting in innovation(s), or through exogenous processes (or ethnogenesis), taking place beyond social boundaries through horizontal transmission(s).

In this paper, we will present the first results based on the ceramic chânes opératoires analysis from the western Balkans.
**Keywords:** Neolithic, pottery, variability

**Presentation Preference:** Oral

The Nabóó and Zére are two nearby rivers in the Alto Ribatejo region, in the hinterland of Central Portugal. The Nabóó is a tributary to the west of the Zére, and not far from their meeting point where they enter into the Tagus River. Despite their proximity, they are crossing geologically different landscapes: while the Nabóó is cutting through limestone hills, the Zére 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 Nabóó 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 Zére valley are associated with the archaeological amalgam of Alentejo and the Iberian interior, marked by the Bouquepottery 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 Nabóó and Arta 1 de Val da Laje from Zére. 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 raised 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 04**

### Mixed assemblages and social relations in the Neolithic transitional period of the Central Balkans

**Author:** Dr. Vuković, Jasna, Faculty of Philosophy, Belgrade, Serbia (Presenting author)

**Keywords:** pottery, Starčevo, Vinča, technological tradition, hybrids

**Presentation Preference:** Oral

The transitional period from the Early to the Late Neolithic of the Central Balkans is characterized by the presence of mixed ceramic assemblages on several archaeological sites. Mixed assemblages (not only pottery, but also so-called cult objects - altars and figurines), consist of the specimens typical both to the Starčevo and Vinča technological traditions. However, another very important features occur in these assemblages: hybrids and the presence of carelessly, roughly finished products. The paper focuses on social aspects of these phenomena: do they suggest mixing of people with different group identities? Do the differences in the relations between the teachers and apprentices in the craft? Does the variability of ornamental techniques and design motifs imply lack of social pressure in learning frameworks? And finally, do the roughly finished products suggest the presence of inexperienced artisans or novices unaware of local traditions?

---

**TH6-03 Abstract 05**

### Transforming traditions behind the gloom: 6th millennium BC pottery styles of Transdanubia

**Author:** Jakucs, János, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary (Presenting author)

**Co-author(s):** Marton, Tibor, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary

**Co-author(s):** Kreiter, Átila, Hungarian National Museum, Budapest, Hungary

**Co-author(s):** Voros, Viktor, Independent researcher, Pecz, Hungary

**Co-author(s):** Gross, Krisztian, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest, Hungary

**Keywords:** 6th millennium BC, pottery styles, Transdanubia

**Presentation Preference:** Oral

Southern Transdanubia in eastern 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. Balatonaszálló-Kis-erdő lies on the southern shore of Lake Balaton, while Tolná-Mősz is located at a distance of 80 km to the southeast closed to the right bank of the Danube. Szédenény-Kukocsa is an abandoned site located only a few km from each other. The existence 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 Balatonaszálló 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-Mősz and Versend-Glincsens. In contrast, the vast majority of the pottery material from Szédenény can be hardly distinguished from the early Vinca ceramic style, while Nélíde style pottery – probably the earliest manifestation of the Sopot 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 within the material of various contemporaneous households of the same settlement, the assemblage in the proportion of different ceramic styles is particularly noteworthy. The perhaps most intriguing variation is when contemporary but spatially clearly separated pottery styles are present on the same settlement, that means amalgamation cannot be detected at household level. Significant differences are obvious even if adjacent, contemporary sites are contrasted. The observations on pottery were also reinforced by robust formal modelling of absolute chronological dates in most of the cases. As a consequence, we are facing extremely colourful microregional patterns. Attention must be paid to this mosaics nature of the contact zone and to the stylistic variability within the entire settlement system.

The various pottery styles that existed partially or wholly coeval in the very same microregion or even within a settlement, raise several questions in terms of the categories of typochronology and in terms of pottery styles as identity markers. Although, according to the above, concepts of both stable identities and sharp boundaries should be challenged. However, we also pay attention to distinguish not only the shared aspects of the pottery range, but such particular elements that could not be noted in entangled assemblages, and so allow us to detect real entities within a Neolithic pottery tradition. Finally we attempt to answer the question if any regional rules can be set to define elements as hallmarks of the phenomenon.
Do ut des: pottery “imports” and imitations in Romanian Neo-Eneolithic

Author: Stelian, Cristian Eduard, "Vasile Parvan" Institute of Archaeology, Bucharest, Romania (Presenting author)
Keywords: Neo-Eneolithic, pottery, Romania
Presentation Preference: Oral

Among all finds recovered from the archaeological record, pottery is one of the most common types. Since the beginning of professional archaeology, pottery was used to establish exchange relationships between social groups from different areas and/or to construct relative chronologies. In this presentation we try to review so-called “imports” and imitations found in archaeological record in the Romanian Neo-Eneolithic and discuss their meaning. With the help of ethnoarchaeological record we can assume the significance of “foreign” pottery in areas with different traditions as a product of exchange, exogamy or imitation. The separation between “imports” and imitations is usually very hard to identify with the naked eye, in this case archaeometry could be a useful tool to answer the questions.

Hybrid Societies: the vanguards of Neolithic “cultures” in the Balkans

Author: Dr. Naumov, Goce, Museum of Macedonia, Skopje, Macedonia (Presenting author)
Keywords: Balkans, house models, pottery
Presentation Preference: Oral

The determination of culture was a reference for the culture-historical archaeology in the Balkans and abroad, and leads many to identify particular regions with finds unearthed from Neolithic sites. This was a helpful tool for the early stage of prehistoric archaeology and contributed to the understanding of particular regional attributes common to the societies that inhabited various areas in the Balkans. However, recent research indicates that these cultural borders and material features are not so rigid and often re-establish 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 as such contributed in the identification of sites into cultural groups. Hence, the reconsideration of published material, artifacts from museum stores, documentation and new excavations indicated that some geographically divided and different regions were barely “culturally” diverse. Thus, pottery regarded as the main feature of one culture appears in another which was classified as belonging to a different cultural group.

The case-study of the Neolithic pottery in Pelagonia and its production within the agricultural communities of the Skopje valley, Lake Ohrid basin, Ovče Pole and Polog, will be presented. Late Neolithic Vinča pottery will also be considered, as some of the temper types and design features appear at earlier tell sites in Pelagonia. In addition, the anthropomorphic house models from this area will be discussed. Originally, these were attributed by archaeologists to different cultures due to their typological variations in these regions.

Therefore this paper will mainly consider pottery design and human representations in order to emphasise the common Neolithic features of the isolated regions and the modes of networks which integrated shared identities of distant societies. The issue of culture will also be discussed as it often invokes a contemporary notion of communities that inhabited particular geographical areas. Their intensive communication and common material culture go beyond the archaeological cultural frameworks of the Balkans and as such will be emphasised for further revision.

Modelling interaction at the peripheries: LN/EC Levant and the Halaf/Ubaid interaction spheres

Author: Gabriela, 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 millennium BC) contain pottery identified as Halaf and/or Ubaid. In most cases, these ceramics are not very similar stylistically or formally to the ‘classic’ Mesopotamian specimens, and the Levant is in fact considered to lie outside the area where Halaf and Ubaid ceramic traditions emerged. More interestingly, however, the Levant is located on the periphery of both Halaf and Ubaid horizons or interaction spheres. Here, like in other ‘peripheral’ regions, pottery is one of the few elements, if not the only, to be shared, and its higher variability, both in terms of decoration and forms, indicates the differential spread of traits over space and time. The traditional narratives mainly emphasise possible cultural or ethnic affiliations to northern Mesopotamia, but, in this paper, Levantine ‘mixed’ assemblages are rather conceived primarily as a peculiar expression of the vast Halaf and Ubaid supra-regional socio-material networks.

The uneven distribution and networking of traits attests 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 connected to 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.

The Comb/Narva interface in the E. Baltic: pottery form and function in the dynamic 4th mill. BC

Author: Dr. Bárózy, Valéa, 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 worked 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.

A Technological Study of Pottery from the Archaeological Site Gradiste-Iđoz in Serbian Banat

Author: Milinkov, Neda, Intermunicipal Institute for Protection of Cultural Monuments Sabotica Serbia, Sabotica, Serbia (Presenting author)
Co-author(s): Amicone, Silvia, University College London, London, United Kingdom
Co-author(s): Gajić-Heinemann, Majda, University of Belgrade, Vinca Institute of Nuclear Sciences, Belgrade, Serbia
Co-author(s): Jančić-Heinemann, Maja, University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia
Co-author(s): Kreiter, Attila, Hungarian National Museum, Budapest, Hungary
Keywords: Neolithic, pottery technology, Tisza, Vinča communities
Presentation Preference: Oral

The archaeological site of Iđoz (Gradiste Iđoz), 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 archaeological research (BORDERLAND: ARISE project) explores three chronological key phases of its prehistory, consequently yielding large amounts of ceramic materials. One of the main focuses of the project is to investigate social boundaries between Neolithic communities characterised by ‘Tiszá’ and ‘Vinca’ 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 Vinca phenomenon was already fully developed in the northern Banat. On several sites in the Serbian Banat the evidence of mixed assemblages and the presence of hybrid vessels, exhibiting typical style of both communities, was recorded.
TH6-03 Abstract 15
Corded Ware Culture in the North-West of Russia: mix of traditions

Author - Tkach, Evgeniia, 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 mil. BC on the pile-dwelling settlement Usvats-kaya (Palov region). I want to describe the settlement – layer a settlement Serteya II. This is settlement on the mineral bank near the river. Ceramics introduce a different traditions: local, Usvatskaya, and indigenous, CWC. We could trace them in technology of making pottery (the way of using vessels, admixture in the molding dough), in pottery forms and in ornamentation. For example, admixture of gruss was never used in Usvatskaya culture, but on the vessels with cord ornamentation this is a main additive. On the other hand, technique of "blade and awl" was wide spread in Usvatskaya culture, but in the CWC materials on the settlement this technique was found only a few times. Cord ornamentation was never used in the North-West Russia until the end of Neolithic. This tradition came with CWC inhabitants in the end of III mil. BC. More interesting, that in couple vessels we see the mix of different traditions: ceramic was formed by using slabs, ornamentation represents a horizontal lines of 2-twasted cord and as admixture in the molding dough was used gruss. Possible, that newcomers (CWC inhabitants) were mixed with local inhabitants and we trace now some new archaeological tradition, new archaeological culture.

TH6-03 Abstract 16
Making pottery on the Neolithic settlements in the north of the Sozh river basin (Eastern Belarus)

Author - Tkachova, Maryia, Institute of History NAS of Belarus, Minsk, Belarus (Presenting author)
Keywords: technology, Neolithic pottery, Upper Dnieper culture

Presentation Preference - Poster

This study is based on the ceramic material from the main Neolithic sites of the in the north of the Belarusan Piaszotnka (Eastern Belarus). In 2012, Rubina 1 and Stary Dzezin 4. In the course of excavations multi-period materials were obtained, but Neolithic finds dominate.

The Hronaj 3 settlement is situated on the first terrace of the left bank of the Sozh River. The site was discovered by V. Tret'yakov in 1974. In 1975 A. Kalesov 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 Rubina 1 settlement is situated on the first terrace of the left bank of the Sozh River (Eastern Bularus). The site was discovered by V. Kopytin in 1994. In 2007-2018 A. Kolosov excavated here an area of 300 m². The presented poster discusses the results of study of the 2042 Neolithic potsherds from more than 100 vessels. The Stary Dzezin 4 settlement is situated on the first terrace of the left bank of the Oster River. The site was discovered by A. Kolosov in 2006. In 2008, 2010 and 2012 A. Kolosov excavated here an area of 232 m². The results of the study of 182 Neolithic potsherds from more than 80 vessels will be presented. Ceramic material is grouped following three main parameters: technology, morphology and decoration. This allows a division of the pottery into several groups, which should reflect peculiarities of cultural situation in the northern Belarusan Piaszotnka region during the Neolithic period.

Pottery 1 is represented by slightly shaped vessels with slightly bent rim. The vessels were tempered with organic and coarse-grained crushed stone. The dominant ornamental element is called "tulik." Ornamentation is dense – closely spaced rows of prints. These types of ceramics are similar to those from the sites of the Deza River basin.

Group 2 is represented by vessels with 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 of the Pli-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 Deza River basin has played a key role in the formation of these traditions.
Investigations of the last decade significantly increased the resource base for the study of the Neolithic of Belarusian Pabužža (Belarusian part of the Bug River basin). During recent excavations Sub-Neolithic pottery was found at 19 sites in the region. For the first time pottery of the Dubičiai type was discovered in the region. This fact gives the possibility of defining more exactly the area of the Prypiat-Neman culture. Some finds attributed to the Sokolnikiwe pottery type were also found. The latter type is most probably a result of a local development of the Dubičiai pottery in the western part of Prypiat-Neman culture area.

Neman culture is represented by pottery of Lysaja Hara and Dobry Bor types. The finds which belong to the former are not numerous. It may be remotely connected to the main area of its distribution (upper reaches of the Neman River). The Dobry Bor type pottery is much more frequent. It was found at most of the studied sites. It can be divided into two groups: the first one is represented by hybrid pottery with features of both Lysaja Hara and Dobry Bor types. Analogies to such pottery can be found in the Upper Prypiat River basin. The second group consists of “classic” Dobry Bor pottery.

Sub-Neolithic pottery from the territory of Belarusian Pabužža

**TH6-03 Abstract 18**
**Crikvice-Bukovlje: Identifying Copper Age pottery from disturbed stratigraphy**

**Author:** MA Čataj, Lea, Croatian Conservation Institute, Zagreb, Croatia (Presenting author)

**Co-author(s):** Poslovni, Hrvoje, Croatian Geological Survey, Zagreb, Croatia

**Keywords:** Copper Age, Croatia, Lasinja culture

**Presentation Preference:** Poster

The site Crikvice-Bukovlje in central Croatia has been systematically excavated since 2012. Primarily it was recognised as a Late Antique site dating to the 5th and 6th centuries AD. During the archaeological excavations prehistoric layers from the Iron and Copper Age were also found. Due to the erosion and later occupancy of the site, the oldest Copper Age layers were severely disturbed. Hence, the affiliation of pottery finds is based on their ornamentation, shape and technology. Although most of the finds could be ascribed to the Lasinja culture, there are some pieces that show traits of the Retz-Gajary culture. The appearance of pottery belonging to these two cultures is known from several sites in Croatia, Slovenia and Austria. Sometimes they are found together in the same layers and sometimes Lasinja culture pottery is found in layers beneath the ones with pottery ascribed to the Retz-Gajary culture. New radiocarbon dated assemblages have brought some new insights regarding some of the ornamentation that was previously connected to the late phase of Lasinja culture, supposedly influenced by Retz-Gajary culture.

The question raised is whether we can suppose the presence of Retz-Gajary culture or its influence at the site Crikvice-Bukovlje based on several ornaments that are usually ascribed to Retz-Gajary culture or are we dealing with Lasinja culture pottery and pottery with Retz-Gajary traits will also be analysed in order to see if there are some differences between them.

**TH6-03 Abstract 19**
**Neolithic pottery from Ljubic cave (Istria, Croatia)**

**Author:** Percan, Tihomir, Croatian Conservation Institute, Svetvincenat, Croatia (Presenting author)

**Keywords:** analysis, decoration, Neolithic, pottery

**Presentation Preference:** Poster

Due to its exceptional geographical position on the crossroads of ancient paths, the Istrian peninsula was an important link between east, west, north and south ever since prehistoric times. The Ljubic'eva cave is situated in southern Istria (Croatia) near the village of Marčana and only 15 kilometers east of Pula, the peninsula's largest city. Since 2008 to 2011 archaeological excavations were carried out in cooperation between the Musee d'Anthropologie prehistorique de Monaco ( Principality of Monaco) and The Croatian Conservation Institute (Croatia). Recorded findings, particularly ones from the Neolithic period, implied that the cave was intensively in use during this period. A large number of pottery fragments were nicely decorated with different motives and ornaments characteristic of the cultural phenomena from Early (Impressed culture), Middle (Danilo culture) and Late (Hvar culture) Neolithic therefore making it the period of the most intense usage of the cave. With this poster we will put the focus on the Middle Neolithic (Danilo culture) pottery and its ornaments (S shaped decoration, different spiral motifs, incrustation). Furthermore, laboratory analyses of pottery and ornaments show the significance of this multidisciplinary approach to archaeology and pottery. With these kinds of experiments, interesting results were collected. This work would not be possible without good cooperation between archaeologists and the laboratory where the analyses were held (Metris, Pula, Croatia). We also emphasise the significance of the modern 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:** Sadek, Katalin, Institute of Archaeological Sciences of the Eötvös Lorand 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 periods and for users in different situations could have been. The examples from the settlements of Polgári Csád szhalom and Pusztataskony-Ledence show how the background concept and/or social function of certain vessel types might be understood, and how a change of these cognitive elements in the case of occasional examples, when affecting appearance or the circumstances of deposition/disposal, might be detected.
Migration is a hot topic, but not a new one: Diaspora communities are well-known in the medieval and early modern past. The question is if the otherness of the migrants was as a hindrance or a resource in their new life. In this session we aim to take on this question by approaching links between individual identity, community and host- and homelands.

The session brings together three research areas: the study of migration, urban development, and the study of the formation and expression of group- and individual identity through materiality. The examples are many. The medieval Hanseatic migration was followed by refugees and human 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 give rise to serious of core questions in the interpretation of the archaeological record. 1. How do we identify immigrant identities? 2. How do we assess social or other differences within the immigrant community? 3. How do we assess reactions of the host land to the immigrants? 4. How do we separate diasporic identities from those of overlapping communities cutting across ethnicity, e.g., occupation, social and economic status, age, gender and rank.

The session takes its starting point from the ongoing Danish-Swedish research council project Urban Diaspora, that focus on Scottish, German and Dutch diaspora communities in Scandinavian cities. Urban Diaspora is based on the materiality of consumption reflected primarily in ceramics, accoutrements and written records, but we invite speakers to give their perspectives on immigrant identities through papers dealing with all kinds of materiality, whether rooted in Scandinavian communities or in those of refugee Dutchmen, German craftsmen, Scottish traders, Portuguese merchants, Italian artists or something else in Europe and beyond.

TH6-04 Abstract 01
Ireland and its medieval diasporic communities

Author - Ó Ní Fhlaithín, Russell, University of Cambridge, Heidelberg, Germany (Presenting author)
Keywords: Acculturation studies, Migration, Postcolonial theory
Presentation Preference - Oral
For a region traditionally associated in recent centuries with its emigrant diasporic communities, Ireland has had a long and complex experience of 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 contradiction to – the outcomes of these episodes of migratory activity. While recurring episodes will occasionally be made to sixteenth/seventeenth-century migratory and colonial activity, this paper will mainly compare and contrast two medieval case studies: the arrival of settlers firstly from Scandinavia and the Scandinavian Diaspora between the ninth and tenth centuries, and secondly from the broader Anglo-French world from the end of the twelfth century to the mid-fourteenth century. While each of these episodes differed from the others, in terms of scale and outcome, there were some commonalities. For example, both involved settlers from geographically disparate homelands, such as modern-day Denmark and Norway and areas of associated settlement in the case of the former, and modern-day England, France, Flanders, Wales and Scotland in the latter. Furthermore, both might be regarded as colonisation, 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 the immigrants? 4. How do we separate diasporic identities from those of overlapping communities cutting across ethnicity, e.g., occupation, social and economic status, age, gender and rank. the archaeological record with emphasis on how to distinguish between diaspora identities and other overlapping identities such occupation, social and economic status.

TH6-04 Abstract 02
Jugs and pots - beer and stew? *Hanseatic *impact on medieval and early modern Bergen (Norway)

Author - Demuth, Volker, University of Stavanger, Stavanger, Norway (Presenting author)
Keywords: Germans in Bergen (Norway), Hanseatic league, Pottery, drinks and food
Presentation Preference - Oral
As widely known, the city of Bergen was the west coast of Norway was an important element in the trading network of the Hanseatic league. From the 14th to the 17th century a considerable number of Germans from various Hanseatic towns were living here, making up partly up to a quarter of the town’s overall population.

There is a large collection of archaeological material that can be connected with these Hanseatic population, as the site of the Hanseatic lomtor was in the scope of extensive archaeological research from the 1950s to the 1970s. Based mainly on the analysis of a selection of pottery from Bergen, I want to discuss how far the archaeological material reflects the everyday habits of the persons that lived in the Hanseatic quarter of Bergen, presumable their eating and drinking habits. Are there significant traces that can be linked to the Northern German origins of these groups? Is it possible to pinpoint differences in the archaeological material that can indicate whether ethnic Norwegians or immigrants Germans lived on a particular site? What may have been possible areas of cultural contact and transfer between the different ethnic and social groups? By combining the archaeological material with historical evidence the outlines of social realities in an international trading town my emerge.

TH6-04 Abstract 03
Urban Diaspora - Entangled diaspora communities in Early Modern Scandinavia

Author - Dr. Linnea, Jette, Moesgaard Museum, Odder, Denmark (Presenting author)
Keywords: Diaspora, Migration, Urbanity
Presentation Preference - Oral
The Early Modern period (c. 1450-1660) was a time of transformation in the Early Modern cities. Increasing Early modern migration into Scandinavia from the Netherlands, present Germany and the UK meant an influx of people, objects and ideas that profoundly transformed the cities, where the immigrants settled and formed diaspora communities with strong commercial and family ties to their homelands. The formation of such communities in established cities gave rise to a series of reactions from the hostlands: Some meetings were peaceful; others were conflict-ridden. The migrants came with different agendas: conquerors and colonizers, traders, economic, political and religious refugees had their own agendas and aims, each of them influencing the interaction within the communities and between the communities and the local inhabitants. And they 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 project is in its final phase The aim of this paper is to present the research framework and some results of the project, concentrating on the agenda 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 Lodböse case

Author - Dr. Rosan, Christina, Akademiska SHMM, Tölö, Sweden (Presenting author)
Keywords: Early Modern, Migration, Scandinavia
Presentation Preference - Oral
The town Nya Lodböse 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 City of New Lôdish in the Historical records

Author: PhD Larsen, Daniel, University of Gothenburg, Göteborg, Sweden (Presenting author)
Keywords: Early Modern, Immigrants, New Lôdish
Presentation Preference - Oral

The city of New Lôdish 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 Lôdish 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 Lôdish, 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’ size, population, and economic capacity, and the occupational status of their inhabitants.

TH6-04 Abstract 06

Archaeological excavations of Dutch settlements from the 16th-17th century in Elsinore, Denmark

Author: MA Appel, Liv, Museum Nordsjælland, Hørsholm, Denmark (Presenting author)
Keywords: Diaspora communities, Historical archaeology, Migration
Presentation Preference - Oral

The magnificent borough of Elsinore, situated on the narrow Sound between Denmark and Sweden, is of special interest concerning the archaeology of the wealthy Dutch immigrants in the 16th-17th century. Since 1429 every ship passing through the Sound had to moor at Elsinore roads in order to pay the Sound toll taxes, and the Danish and foreign merchants made good money trading with the foreign ships. The increased Dutch immigrations following the wars in the Netherlands in 1587, coincided with a marked growth by growth and progress for the town as the king Frederik II rebuilt the castle of Kronborg. Many well-established Dutch merchants settled at the sandy area situated between the town of Elsinore and Kronborg Castle. This new town quarter, earlier known as Sanden, i.e. the Sands, got an abrupt end due to the Swedish attack in 1658. Recent archaeological investigations in connection with extensive construction work in this area, which were until recently hidden under the former shipyard area, have revealed remnants of buildings, culture layers, latrines and wells connected to the rich 16th-17th century settlements. The fauna and the botanical remains reveal, as do the archaeological finds, that the Dutch merchants in Elsinore dined on the finest quality food and on imported tableware in faience and ceramics.

TH6-04 Abstract 07

Can an animal bone assemblage indicate a diaspora?

Author: Dr. Enghoff, Inge Sønder, University of Copenhagen, Copenhagen OE, Denmark (Presenting author)
Keywords: Animals, Diaspora, Entangled Migration, Zooarchaeology
Presentation Preference - Oral

Analyses of archaeological animal bone assemblages sometimes provide evidence of sussessions and/or coexistence of different cultures. Thus, the species present and their relative frequencies at the sites Gården under Sandet, Greenland (ca. AD 1000-1400) show that the Norse settlers imported European domestic mammals and partly subsisted on these, but that over time the importance of native seals increased, whereas the importance of cattle decreased. Cutmarks etc. on the bones may also provide clues; for example bi-perforated 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 Sæde/Vestby (AD 1290-1380) which shows that the procedure of gilling the herring is not a Dutch invention which has been exported, as indicated by written sources, but was practiced in Denmark much earlier. The interpretation of the animal bone assemblages is complicated by the fact that different classes within a single society used different species of animals.

Aspects of the animal bone material from Elsinore, Denmark (16th-17th centuries AD), analysed as part of the Urban Diaspora project, are presented with a view to establishing whether the material provides evidence of traditions of the Dutch diaspora.

TH6-04 Abstract 08

Tracing ethnicity in food consumption - the case of Nya Lôdöse

Author: Maitin, Emma, Bohusläns Museum, Gothenburg, Sweden (Presenting author)
Keywords: consumption, ethnicity, fish bones
Presentation Preference - Oral

The present paper deals with the question to what extent ethnic identity can be traced in the archaeological remains of food consumption. Within the research project Urban Diaspora – Diaspora communities and materiality in early modern urban centers it was asked whether it was possible to distinguish differences in consumption between plots in the town of Nya Lôdöse (1473-1624), Sweden. The town was situated at the Swedish west coast, and was characterized by a multicultural population largely consisting of merchants, soldiers and sailors. From 2013 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 formed a unique possibility to map differences in food consumption between households, and possibly connect the variation with the identity of the plot owner; e.g. 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 Lôdöse, Sweden

Author: PhD Heimdahl, Jens, National Historical Museums, Hägersten, Sweden (Presenting author)
Keywords: archaeobotany, beer, immigrant
Presentation Preference - Oral

Food and beer traditions foreign to the local Swedish west coast have been traced by specific plant material in the late medieval town Nya Lôdöse, and may linked the local burgers of Germans or Dutch origin. Traces of hop beer brewing from the late 13th century is an anomaly in an area strongly dominated by sweet gale beers as late as mid15th century. Likewise, the use of rice in medieval beer, as well as rice in rice beer, is interesting. The use of rice and other grains may also be easily imported by German or Dutch househollows for the making of: traditional dishes - like gruels consumed on specific occasions. The traces of foreign food and beer traditions bear witness of a multi-ethnic town, with populations of traders preserving traditions of their homeland.

TH6-04 Abstract 10

Plant finds and migration in early modern (15th to 17th century) Aalborg

Author: MA Jensen, Peter Mose, Moesgaard Museum, Højer, Denmark (Presenting author)
Presentation Preference - Oral

The Danish town of Aalborg from northern Jutland is known historically to have contained a number of immigrants in early modern times, mainly coming from the Netherlands. The perspective of the presentation will be to discuss the possibilities of observing signs of migration in analyzed plant material from the town.

The basis for the discussion is a number of recent archaeobotanical analyses dating from around 1400 A.D. until the late 17th century from Aalborg. The analyzed samples represent diverse archaeological contexts, ranging from 16th century garden soils or dung layers coming from a monastery and a later hospital area to different latrine samples. One latrine sample of particular note comes from a late 17th century latrine connected to the bishop’s house in the central part of the city.

TH6-04 Abstract 11

Freezing Danes and Strangers - The Tile Stove Heating in “Dansk” and “Strangers” Households

Author: Assoc. Prof. Dr Aagebæk, Rainer, School for Culture and Society, Højbro, Denmark (Presenting author)
Keywords: Court Culture, Ethnicity, Post-medieval Archaeology, Renaissance, Stove Tiles, Immigration
Presentation Preference - Oral

The basis for the discussion is a number of recent archaeobotanical analyses dating from around 1400 A.D. until the late 17th century from Aalborg. The analyzed samples represent diverse archaeological contexts, ranging from 16th century garden soils or dung layers coming from a monastery and a later hospital area to different latrine samples. One latrine sample of particular note comes from a late 17th century latrine connected to the bishop’s house in the central part of the city.
In the houses of urban strangers?

**Author** - Historian Ţîţîţă, 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.

---

A newcomer’s burial: anthropomorphic graves in medieval Transylvania (12-13th c.)

**Author** - Dr. Istrate, Daniela Veronica, Braşov, Romania (Presenting author)

**Keywords**: anthropomorphic graves, medieval colonization, Transylvania

**Presentation Preference** - Poster

From the mid-12th century, guests from Central Europe, generally known as Teutonici, Flandrensi, and ultimately Saxons, were invited to settle in southern Transylvania (central Romania) in return for important economic and social privileges. The process of colonization was at its peak in the first decades of the second half of the 13th century, when several villages and towns were established in the hinterland of Sibiu, the largest city in southern Transylvania. Settlers continued to come well into the early 14th century, establishing enclaves of a German-speaking population. They developed a successful economic system, which enabled the establishment of strong settlements, the rise of an intellectual elite, and the growth of cities that 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 chronologically 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.

---

Transcending Borders in Later Prehistoric Europe

**Friday, 2 September 2016, 09:00-18:00**

**Faculty of Philosophy, Room 209**

**Presentation Preference** - Regular session

Later prehistoric Europe has traditionally been studied in relation to a series of boundaries. These include the bounded chronological horizons which divide Late Bronze Age and Early Iron Age communities; geographical boundaries created through the development of separate national traditions of archaeological research; boundaries between perceived ethnic groups such as the Celts, Iberians, Veneti etc; and disciplinary divisions which separate ‘humanities’ from ‘scientific’ approaches. In recent years however this picture has begun to change. New research agendas seek to break down chronological horizons, with particular attention paid to transitional periods; more nuanced understandings of cultural identity are promoting cross-border collaboration, with a focus on zones of interaction between communities traditionally viewed as monolithic and bounded; interdisciplinary research frameworks are demonstrating the benefits of integrating scientific with more traditional approaches; and increasingly collaborative projects are fostering relationships and knowledge exchange on an international scale.

This session will draw on a number of papers from the ENTRANS Project; a HERA-funded collaborative project between the Universities of Bradford (UK), Ljubljana (SLO) and Zagreb (CRO), which explores cultural identities and encounters across the Late Bronze Age and Iron Age transition in the East Alpine region—a zone of interaction and encounters between Mediterranean societies and their traditionally perceived ‘barbarian’ neighbours. We also invite papers which seek to break down chronological, geographical or disciplinary boundaries within other parts of later prehistoric Europe (broadly, the Bronze and Iron Ages).

---

Adieu Hallstatt! Adieu La Tène! Revisiting old ideas

**Author** - Prof. emeritus Collis, John, University of Sheffield, Sheffield, United Kingdom (Presenting author)

**Keywords**: Celts, Iron Age chronology, Networks

**Presentation Preference** - Oral

At the 1984 conference of the AFEAF (published in 1986) I gave a short paper suggesting that if we could only get rid of the terms Hallstatt and La Tène we might write a very different narrative of the European Iron Age. At that time I was looking specifically at 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 Déchelette) 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.

---

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

This paper seeks to explore, in how far it is possible to identify common traces or differences between “Danish” and immigrant households in Aalborg and Ebeltoft during the renaissance. The focus will be put on stone tiles as type of material culture with a solid background of research and many possibilities to identify the origin of fabric, decoration and use. Moreover, the position of a stove in the house and its relationship to the development of dwelling habits will be discussed.

---
Boundaries provide an exciting and dynamic place to do archaeology, but they can also be fraught with troubles. Working across national borders often requires realignment of classificatory schemes for both cultural groups and their associated material culture. To say a site belongs to “the Iron Age” 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, the problems are only exacerbated when also faced with a boundary dividing one chronological period from another. Drawing primarily upon examples from Iron Age Britain, from both sides of the Anglo-Scottish border, from the North to the South, and across the period of Roman contact and conquest, this paper will explore how the development of precise independent chronologies enables archaeologists to negotiate the potential perils in these liminal locations, allowing us to better model and understand social change across space and through time.

TH6-05 Abstract 03
Strangers at the Feast? Elites, artefacts and exchange in the 1st millennium BC in SE Slovenia
Author - Mason, 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 Adriatic in the 1st millennium BC in the light of recent research. Exotic material in both mortuary and settlement contexts reflects changing patterns of elite exchange in the area, balancing the importance of a N-S route between the Eastern Adriatic and the Eastern Alps on the one hand and a E-W route between North and Central Italy through the Head of the Adriatic to Pannonia and the northern Balkan peninsula on the other.

TH6-05 Abstract 04
Iron Age interaction in the Po river lowlands and in the pre-Alps of the western Veneto (Italy)
Author - MA Saccocio, Fabio, La Sapienza University of Rome, Roma, Italy (Presenting author)
Keywords: borders, Iron Age, Veneto region
Presentation Preference - Oral
The western Veneto region is geographically characterized by a landscape that progressively decreases in elevation from the peaks of the Pre-Alps to the plain shaped by the Brenta, Adige and Po rivers and tributaries. The western border of Veneto seems to show a long-lasting pattern of interaction between human groups at least since the Final Bronze Age. This long duration 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 Age and the Early Iron Age (X-VIII century BC), i.e. the Proto- and Palaeovenetian culture, but they strongly differ in the settlement pattern, showing a marked continuity in the South-Western Plain area, while the northern Pre-Alps seem to be affected by the wider Final Bronze Age settlement crisis. Finds related to the Trentino-Lucan-Platten culture are found widely, showing intense supra-regional communication. At the same time, Leonardi proposed (2011) that the Pre-Alps hillfort settlements were combing with and transforming local forms and traditions in the mortuary and settlement sphere. This is reflected in the adoption of iron technology, new forms of elite expression and the aggrandisement of centres of power that accompanied the transformation of the LBA Ljubljana group and gave rise to the EIA Dolopriap group.

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) - KRZ, Borut, Dolenski: 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 Umbriul Culture – the Hallstatt Culture – the La Tène Culture. In addition, the identity of individual communities has been based mostly on the typology of the material culture, and the identity change has been perceived as a direct reflection of the physical change in the population. Although it 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 idea of identity of the Iron Age cultural groups should be analysed at the level of individual communities. A comparative analysis of contemporary and conceptually similar grave inventories discovered in different burial 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 chronological axis of expression of identity in grave contexts. At this site, one can distinguish among three main burial phases, which are also physically different. The first consists of a typical graveyard of the Umbriul 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 complementariness, at least during the transition periods. In addition, grave-goods 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 determined through comparison between the Lower Carniola burials and burials in the Kaptol area. The inventories of these graves show certain similarities regardless of the fact that burial ritual and local dynamics of cultural change are significantly different in these two areas.

TH6-05 Abstract 06
ArkeoGIS: a multilingual free online tool to transcend borders
Author - Dr. Bernard, Loup, Université de Strasbourg, CNRS UMR 7044, Strasbourg, France (Presenting author)
Keywords: ArkeoGIS, multilingual, open
Presentation Preference - Oral
Originally developed in the Rhine Valley in order to gather together French and German archaeological data from the Bronze Age to the Early Medieval period, ArkeoGIS now aggregates more than 60 datasets covering in excess of 50,000 objects, analyses in a Europe-wide scale. Its efficiency for trans-border archaeological and paleo-environmental studies has convinced us to move from version 3 to 4: the latter will offer the possibility to add new languages and chronological systems from summer 2016 onwards. The presentation will also focus on several new redundant, trans-border problems and explain the solutions that have been chosen by the team of archaeologists, geographers involved in the project, and the ways in which the tool can be useful for any future cross-border project.
TH6-05 Abstract 07
Crossing the borders of the La Tène “world”

Author - Dr. Danielisova, Atibita, Institute of Archaeology CAS, Prague, v.v.i, Prague 1, Czech Republic (Presenting author)

Co-author(s) - Burák, Daniel, The City of Prague Museum, Prague, Czech Republic

Keywords: Baltic, transalpine, Adriatic, borders, La Tène

Presentation Preference - Oral

How can we design borders of and within the La Tène “world”? By spread of typical material culture? By distribution of characteristic sites (flat burials, oppida), by textual evidence of the presence of the “Celts” or according to the political-economic structures reflected namely in spatial distribution of characteristic coinage or pattern of long distance imports? Can the same material culture stand for different cultural identities, different political, economic or even ethnic entities?

We how 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 (Saôno, Lusitania, parts of Bavaria, parts of middle Danube area etc.) remain deserted. However, there exist some evidence of the prevalence of these traditional connections.

The contribution aims to summarise research development made on the territorial issue of the La Tène culture and its northern (the “Germans”) and southern (the “Romans”) counterparts during the last ten years. We want especially to assess the importance of long distance routes (connecting the Adriatic, transalpine and Baltic regions) and to point out how contemporary study of these communications with the use of modern methods can change our traditional perspective of the concept of borders of the La Tène world.

TH6-05 Abstract 08
Exchanging rough materials between North and South of Europe at a time of transition

Author - Adj. Prof. Oikonomou, Stavros, Arcadia University Athens, Greece (Presenting author)

Co-author(s) - Dr. Oikonomou, Artemios, Department of Archaeology, University of Nottingham, N02/20, 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 of 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 organic and inorganic materials. The scientific investigation of amber can be proved an important tool in the hands of the archaeologist aiming to identify prehistorical 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. Gongues, Alexis, University of Bordeaux Montaigne, Pessac Cedex, France (Presenting author)

Keywords: Alterity, Identity, Mobility

Presentation Preference - Oral

Before going any further, the author wishes to warn that this paper is highly speculative. It is based on the observation of an apparently analogous, with Iron Age patterns of mobility appear year after year more complex light. The perceptions of mobility, through isotopic studies, it remains pretty difficult to detect, based on the study of the material record (personal ornaments, burial practices, etc.), people of foreign origin in any one specific region. This observation suggests that, in the very specific case of individual mobility (i.e. not a mobility through group migration or deportation), geographical origin was more of an influence on one’s biology than one’s “social skin”. In other words, individual migrants would easily have adapted identity markers proper to their new community, thus abandoning those they brought from their original home.

Yet, occasionally, isolated foreigners could be segregated through specific funerary practices, or be the target of specific forms of violence, sometimes ritualized. Exclusion of the alien, going as far as physical extermination, was not then beyond the scope of the Iron Age communities.

These practices seem to have remained quite scarce, however. Above all, they were embedded in a wider range of patterns related to violence used as a mean for negotiating social order, and involving exhibition of weapons, body parts, ritual murders, etc.

In this paper, I would like to argue that the construction of Iron Age identities relied less on one’s geographical origin, but rather on one’s kinship and lineage. This allowed a fluid mobility along the vertices of a network whose complexity and range varied from one time to another and from one person to another, but always connected different geographical and cultural areas through interpersonal bonds built through many generations. In this context, the construction of alterity obeyed rules much more complex than those based solely on ethnicity, embracing kin rivalry, deviation to the consensual social norms, etc. In other word, the destabilisation 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. Potrebič, Hrvoje, University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia (Presenting author)

Co-author(s) - Prandini Ardissonia, The National Museum of Bosnia and Herzegovina, Sarajevo, Bosnia-Herzegovina

Keywords: Donja Dolina, Early/Late Iron Age Transition, Kaptol

Presentation Preference - Oral

This paper will discuss shift of identity that occurred at the Early/Late Iron Age transition in Southern Pannonia. Presentation will focus on the River Sava basin which has been perceived as border in recent centuries. However, at the end of the Early Iron Age, this is the area of dynamic cultural transfer directly related to changes in political-economic structures. Different cultural communities reflected on the level of burial customs as well as settlement organisation. During the Early Iron Age, northern Bosnia was dominated by the Donja Dolina – Sarnski Most cultural group. Chronologically, the necropolis in Donja Dolina begins in the Late Bronze Age, but the site continued to be used for burials until the end of the La Tène period. Around one quarter of the graves within the necropolis contain inhumation 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 finds made in Lower Carniola and even more to those from the Podega Valley and the entire Kaptol Group.

The link between southern Pannonia and Donja Dolina is particularly important during the Late Hallstatt and Early La Tène periods, when some parallels within the material culture indicate that the communities occupying these regions shared a very similar cultural identity.

Generally, it would appear that in the middle of the 6th c. B.C. Hallstatt communities in southern Pannonia did not actually disappear, but their identity was radically changed. The most visible reflection of that change can be seen at the level of burial ritual, with the disappearance of inhumation burials under tumuli. The few sites dated to this period, such as the well-known graveyards of Beremend and Szentőrcs in Hungary, and the graves in Vinkovci, Vučedol, Đašćeli Bečići in Croatia, indicate that these were smaller, flat, skeletal graveyards. The material discovered in them displays a universal similarity in the entire Southern Pannonia, including Donja Dolina and, presumably, the Podega Valley.

From the point of view of the Early Iron Age, this changes the picture of Latenization of this region and suggest that the identity of local communities should be viewed from an entirely different perspective. The earliest manifestations of the La Tène Culture did not come in contact with the typical Hallstatt populations that buried their dead under tumuli, but rather with communities which had already been largely transformed, which used flat skeletal graves and whose attire was generally similar over a relatively large region. The La Tène influences penetrated this universal identity of the Late Hallstatt, thus creating – during the chronological period of the Early La Tène – some kind of a cultural amalgam, observable in the rare graves of the Early La Tène period (which are mostly female).
TH6-05 Abstract 11
Textile Cultures of Iron Age Central and Mediterranean Europe: breaking down the borders

Author: Dr. Gisela, Margarita, University of Cambridge, Cambridge, United Kingdom (Presenting author)

Presentation Preference - Oral

Keywords: culture, Iron Age textiles, Mediterranean Europe

Textiles represent a product the design and use of which are subject to cultural patterning and as such they can be used to establish the identity of an individual or a group with respect to other individuals or groups. Worn or displayed in an emblematic way, textiles can denote variations in age, sex, rank, status or group affiliation, thereby creating and reinforcing social and cultural boundaries. Yet, textiles have rarely been used as archaeological indicators of cultural boundaries in later prehistoric Europe. Textiles from central and Mediterranean Europe preserved in a mineralised form have recently been analysed within the scope of the ERC-funded project Production and Consumption: Textile Economy and Urbanisation in Mediterranean Europe 1000-500 BCE (PROCON). The data collected from several hundred of such sites suggest that, during the Iron Age, and possibly already much earlier, most of Italy shared the weaving technics and aesthetics of the Eastern Hallstatt, while Greece was much more closely connected with the Near Eastern textile cultures. These results suggest that the traditionally perceived cultural boundaries between the East Alpine region and the Mediterranean societies, as well as the connections amongst the latter, have to be reconsidered. The paper will review the evidence and suggest some ideas for transcending borders in later prehistoric Europe by using the generally conservative and ubiquitous textile technology to delineate wider cultural and technological spheres of influence.

TH6-05 Abstract 12
Digital approaches to the presentation and analysis of Iron Age art

Author: Professor Armit, Ian, University of Bradford, Bradford, United Kingdom (Presenting author)

Co-author(s): Evans, Adrian, University of Bradford, Bradford, United Kingdom

Co-author(s): Dr. Buckley, John, University of Bradford, Bradford, United Kingdom

Co-author(s): Becker, Katharina, University College Cork, Cork, Ireland

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 situla art, classically defined as figurative repoussé decoration applied to sheet bronze objects, such as the eponymous situlae, as well as belt-buckles, helmets and occasional other objects. However, both figurative and geometric decoration is also applied to a range of other objects and materials, which are equally important in explorations of the social meaning of Iron Age art in the region. This paper presents a series of case studies based on the digitisation and visualisation of decorated Iron Age objects held in museum collections in Slovenia and Croatia. The aim is to illustrate the potential of specific methods in both the analytical and presentational applications of 3D imaging. The work is a collaboration between ENTRANS, the Fragmented Heritage Project and Bradford Visualisation at the University of Bradford and University College Cork.

TH6-05 Abstract 13
The cremated dead: investigating cremated remains from the Late Bronze Age/Early Iron Age transition

Author: Nicholla, Rebecca, University of Bradford, Bradford, United Kingdom (Presenting author)

Co-author(s): Koon, Hannah, University of Bradford, Bradford, United Kingdom

Co-author(s): Buckberry, Jo, University of Bradford, Bradford, United Kingdom

Keywords: Cremation, ENTRANS, Results

Presentation Preference - Oral

The paper presents the results of osteological analysis of cremated bone from the Late Bronze Age and Early Iron Age funerary assemblages of Croatia and central and eastern Slovenia. This doctoral research forms part of the larger HERA-funded ENTRANS Project examining Late Bronze Age and Early Iron Age cultural encounters in the East Alpine region.

Cremated remains, while rarely examined, can provide a valuable insight into the past. Although the potential for age and sex data can be diminished by the cremation process, the burnt remains can still offer information regarding pyre technology (e.g. heat and degree of burning), selection processes for deposition, and clues as to the condition of the body prior to cremation through the observation of fracture patterns.

In the past the process of cremation and subsequent deposition of human remains has, on occasion, been described as reflecting egalitarian social structures, or even the idea of a ‘poor man’s grave’, especially in comparison with more elaborate Iron Age funerary monuments. The examination of cremated remains from unfilled cemetery sites in modern day Slovenia, and of the large Early Iron Age funerary complex of Kapitol in northern Croatia, has offered an additional level of understanding regarding pre-Historic attitudes to the disposal of the dead.

The investigation seeks to cross boundaries, not only of geographical and chronological terms, but also in regards to strategy. Interpretations draw upon both scientific and more traditional approaches as a means of enriching interpretations of funerary processes in the past.

TH6-05 Abstract 14
Beyond the vessel: residue analysis and the understanding of identity in Early Iron Age Europe

Author: Bastos, Beatriz, University of Bradford, Bradford, United Kingdom (Presenting author)

Co-author(s): Koon, Hannah, University of Bradford, Bradford, United Kingdom

Co-author(s): Dr. Cavalli, Fabio, Hospital University Enterprise “Ospedali Riuniti”, Trieste, Italy

Co-author(s): Visonza, Manca, University of Ljubljana, Ljubljana, Slovenia

Co-author(s): Innocenti, Dario, University Enterprise “Ospedali Riuniti”, Trieste, Italy

Keywords: cremation burials, micro-excavations, multidetector computed tomography

During the cooking or storage of foodstuffs, organic residues are deposited, absorbed and preserved within the porous walls of ceramic vessels. With advances in scientific methods, it is possible to extract those organic residues and, through analysis, identify them. Organic residue analysis has the potential to make a significant impact on our understanding of past societies, from their diet to cultural and social practices. The identification of the resources cooked and/or stored in ceramic vessels can provide important information regarding the source and nature of cultural and social changes that took place in later prehistoric Europe.

With this in mind, the study of organic residues in pottery was incorporated within the ENTRANS Project, which aims to expand our knowledge regarding the nature and impact of cultural encounters during the European Iron Age. This paper presents the results obtained from the analysis of visible and absorbed organic residues in Slovenia and Croatia. The principal aims are to explore aspects of diet and the provenance of resources by comparing the results of residue analysis with contextual data, such as faunal and floral remains. Differences between settlement and funerary sites are taken into consideration, by identifying if the vessels were used and the specific residues found in each context. This paper also demonstrates how organic residue analysis can show patterns of change and encounters during later prehistory.

TH6-05 Abstract 15
‘Beyond the grave’ with the help of multidetector computed tomography and micro-excavations

Author: Dr. Češlar, Matija, University of Ljubljana, Ljubljana, Slovenia (Presenting author)

Co-author(s): Dr. Cavalli, Fabio, Hospital University Enterprise “Ospedali Riuniti”, Trieste, Italy

Co-author(s): Visonza, Manca, University of Ljubljana, Ljubljana, Slovenia

Co-author(s): Innocenti, Dario, Hospital University Enterprise “Ospedali Riuniti”, Trieste, Italy

Keywords: cremation burials, micro-excavations, multidetector computed tomography

Presentation Preference - Oral

The urn is the ultimate ‘burial place’ of the cremated remains of an individual. But it is much more than that. The type of vessel, preparation of the contents, possible additional grave goods etc. has by far not only functional but foremost symbolical meanings and values and holds information about the time of the deposition, ‘cultural’ milieu, status of the deceased and much more.

The study of a cremation burial is not a straightforward and self-evident process. We have to bear in mind that we are dealing with traces of events and/or processes, the understanding of which is only partially. On the other hand we have to admit, that it is only the information that we can trace, observe and make documentation of, which we later analyse, study and eventually interpret. Therefore the research of an urn starts already with the preparation for the excavation of its grave. In our case studies that means the analysis of the 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 when all the possible details have to be observed and documented; with modern excavation techniques and methodology as well as standardized reporting protocols the results became much more comparable, which is crucial when trying to study wider cultural phenomena, as in this case the burial site.

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 multidetector computed tomography connected with the micro excavation until now did not make it into the standardized grave research 'tool-box', but it is certainly on the way there.

TH6-05 Abstract 16
Open-minded access to Late Bronze Age societies in southern Carpathian Basin

Author - Loranj Dzidari, Daria, Institute of Archaeology, Zagreb, Croatia (Presenting author)
Co-author(s) - Radovilj, Sinisa, Croatian Academy of Science and Arts, Zagreb, Croatia
Co-author(s) - Rajić Bikar, Petra, Institute for Anthropological Research, Zagreb, Croatia

Keywords: communities, Late Bronze Age, mortuary practice

Presentation Preference - Oral

Late Bronze Age communities in southern Carpathian basin are known through different cultural patterns/cultures/groups. The research project Late Bronze Age mortuary practices and societies in southern Carpathian Basin (IRP-17-2013-5237), 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 obviously 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 container for food and drink) could be examples of tradition in transitional period from Late Bronze to Early Iron Age in southern Carpathian Basin. Even with the application of open-minded approach, invisible borders still exist, but defined by the people that we investigate, rather than researchers.

TH6-05 Abstract 17
When traditions of pottery making reveal boundaries: a case study from the Upper Rhine Valley

Author - Philippe, Marie, Université de Bourgogne, UMR 6298 ArteHis, Strasbourg, France (Presenting author)

Keywords: ceramic technology, Late Bronze Age, social network

Presentation Preference - Poster

Between Vosges and Black Forest mountains, Bronze and Iron Ages (10th-8th century B.C.), modern France and Germany, the context of this study defies borders. In the Upper Rhine Valley, at the end of the Bronze Age, one can a priori hardly expect to reconstruct boundaries because of a standardisation of the material culture, and the point is more about interactions’ significance. During Late Bronze age, the cultural entity “Rhin-Suisse-France Orientale” or “RSCO” (“Rhone-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 operate, and especially shaping sequences, can vary depending on cultural factors and material constraints. It leads to technical traditions specific to social groups. Social boundaries can thus be defined by the limits of the transmission network of technical traditions. About 50 technical features for example bottom forming technique, finishing technique applied on the outer surface of the rim...) were analysed on 830 well-preserved pottery, sampled on 19 sites distributed from the south to the north of the valley section. A statistical classification procedure has been developed, based on biological methodology, to model the diversity of technical traditions.

It first appears that a technical background is similar on the entire area, with the omnipresence of the coiling technique. However forming methods and sequences are very different and reveal a great variety, which is related to the morphology of the potteries and to their spatial provenance. This distribution indicates that geographical potteries (like mountains or the Rhine river) do not impact on social boundaries. Moreover, technical traditions go through chronotemporal limits and bring thus a complementarity approach to artefacts’ morphology to understand transition mechanisms.
TH6-06

**“DUSTY” ARCHIVES AND ARCHAEOLGY: OLD INFORMATION - NEW PERSPECTIVES!**

Friday, 2 September 2016, 09:00-16:00
Faculty of History, Room 332

Author(s) - Neumayer, Heino, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)
Co-author(s) - Schuster, Jan, Institut für Archäologie, UL, Lödž, Poland
Co-author(s) - Prohászka, Péter, Archäologický ústav SAV, Nitra, Slovakia

Presentation Preference - Regular session

Archives in public institutions and private collections contain an ever-increasing amount of untapped information on archaeological finds and finds 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 zu Erforschung von Sammlungen Archäologischer Funde und Unterlagen aus dem nordöstlichen Mitteleuropa (KAFU), which was founded in 2001, is to reconstruct in international cooperation – Germany, Poland, Russia, Lithuania – the archaeological collections and documentation that was destroyed or dispersed in the Second World War, and so to render this “lost archaeology” accessible for research once more.

In the session the following topics are to be discussed within a pan-European framework: What knowledge can be gained for current research questions within archaeology, beyond the reconstruction of material from lost collections, from providing access to archival material (excavation documentation, photographs, drawings, maps), in particular from the 19th and the first half of the 20th century?

What are effective and promising strategies for the preparation of archival holdings, even when only fragmentarily preserved, in order to extract the maximum possible information?

How can studies of archival material progress beyond mere typo-chronological description of objects and lay the foundation for up-to-date research projects?

How does the way in which archaeologically relevant archival holdings are dealt with vary across Europe? Are there methodological differences?

The session shall provide a forum for contemporary, interdisciplinary and theoretical research approaches towards archival studies. Specific topics are welcome to span all archaeological ideas, regions and periods.

---

**TH6-06 Abstract 01**

**KAFU - A network for archive studies**

Author(s) - Dr. Neumayer, Heino, Museum für Vor- und Frühgeschichte, Berlin, Germany (Presenting author)

Keywords: Archive Archäologie, International, KAFU

Presentation Preference - Oral

The situation after the fall of the iron curtain also allowed a research to the remain of the collections from former East Germany and the eastern Baltic region which had been partly destroyed or scattered as a result of the 2nd World War.

To achieve this in 2001 the Kommission zur Erforschung von Sammlungen Archäologischer Funde und Unterlagen aus dem nordöstlichen Mitteleuropa (KAFU) had been founded in Berlin. The members, scientists from poland, Lithuania, Russian and German universities, museums and archaeological services, wanted to reconstruct the former collections by the study of the archive material and objects which survived the war.

Chief of the commission is the director of the Museum für Vor- und Frühgeschichte Berlin. The secretariat of the commission is also domiciled at that Museum. The Stiftung Preussischer Kulturbesitz and the Römisch-Germanische Kommission in Frankfurt are supporting the commission. Every two years a congress is organized by the KAFU where young scientists are given an opportunity to present their research concerning the themes of the KAFU.

---

**TH6-06 Abstract 02**

**The Sources of the „Archival Archeology“ in the Carpathian Basin**

Author(s) - Dr. Prohászka, Péter, Archäologický ústav SAV, Nitra, Slovakia (Presenting author)

Keywords: Archival Archeology, Archivals, Carpathian Basin

Presentation Preference - Oral

The Carpathian Basin is as a venue of people from the prehistory. A multifarious archeological material is characteristic for it. The Carpathian Basin 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 thieves, hoards, graves and artifacts to light. About these data are in official files, which are in the archives. From the 19. centuries amateur archeologist conduct research and they corresponded about their discoveries and finds with the museums and scientists. A part of the artifacts comes to the museums in Hungary and abroad. These old finds composed the basic of the modern archeology in Europe. The „archaeology archive“ play an increasing role in the international research. Its meaning is in gathering and publishing of all the written sources, locating the books, papers, correspondence, 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, archealogical 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(s) - 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 Romano-Germanic Commission (RGK) include large parts of the archive and the collections of the Reichs Limeskommission (RLK). The RLK explored the Limes mainly from 1892 to 1903 between the Rhine and Danube. The scientific results were edited by E. Fabricius in the series “Der Obergermanisch-Raetische Limes des Roemerreiches” (ORL) from 1894 to 1937. Research results up in the 1930s are included therein, after the actual workings of RLK.

With the final dissolution of the RLK in 1939 the archives came to the RGK. It includes a stock of real administrative records, which was 1991 archived. By far the greater parts are collection items of reports, diaries, correspondence, maps, plans and photos between 1888 and 1939. The stock is supplemented by the card file for the Fundindex ORL, reports in words and pictures about Limes inspections in the 1950s and 1960s and others.

2005 the Upper German-Raetian Limes became UNESCO World Heritage. Since then there is an increased interest in historical documents about this monument. The total inventory of the archives was already recorded in 2004, funded by the State of Baden-Wurttemberg. The documents for the Bavarian Limes section were registered and digitized 2009/2010 with special funds from the Free State.

The Deutsche Limeskommission (DLK) promotes workups of old excavations and research on the Limes by doctoral scholarships for some years now. Thus, the Limes archive now serves as an information and data source for master and doctoral theses, for contemporary historical studies, for articles and databases on special topics, issues related to the preservation of the monument, for different types of visitor information and advice on World Heritage and for exhibitions in museums. Moreover, new questions arise by connecting the results of modern prospecting methods with the early field observations. Two research excavations at the Raetian wall were devoted to these issues in 2015.

---

**TH6-06 Abstract 04**

**Scientific Archive of IHMC RAS: pages of European archaeology**

Author(s) - PhD Meloevedeva, Maria, Institute for the History of Material Culture, Russian Academy of Sciences, St.-Petersburg, Russian Federation (Presenting author)

Keywords: documents, photographs, Institute for the History of Material Culture, Scientific Archive, archaeology

Presentation Preference - Oral

The Scientific Archive of the Institute for the History of Material Culture, Russian Academy of Sciences (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 archeological 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
material can be found in 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
Nikolaovitch and Konstantin Konstantinovitch), from personal collections of outstanding archaeologists, architects, restorers,
orientalists, ethnographers and other researchers.

Nowadays the Scientific Archive of IHMC RAS contains 107 record groups and 79 photo collections of researchers and
organizations which unity about 700 thousands documents. These documents cover age from the 18-th century to the present
day, and a very great value to researchers in history of Russian archeology and culture, but the archives include also a
large number of materials, which represent history, architecture and archeology of European countries. Most of them are
related to the investigations carried out on the territory of Courland, Estland, Lithuania, the Grand Principality of
Finland and the Poland in 15-18 centuries that once belonged to the Russian Empire. The Collections contain documents on the subjects of
classification discovered artifacts; excavation documentation (field reports, including in German, photographs, drawings, maps);
materials, which illustrate the archeological investigations and there projects; correspondence with European researchers and
Scientific Societies; a numerous splendid photos, including glass negatives; of finds and architectural monuments; records
and photographs from travels of Russian scientists in Europe, where we can find information about the museum collections and
pictures of archaeological sites in Italy, Greece, France and others. Some of them have already been published, but many still
remain unknown.

The documents on archeology 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. Shtykin, 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 archeology.
International cooperation could give the opportunity for their best attribution and introduction to the world science.

Architecture of tumuli in Kosovo

Author - Dr. Ass. Baraliu, Sedat, Faculty of education, Prishtina, Kosova (Presenting author)
Co-author(s) - Aliq, Premtim, Institute of archaeology, Prishtina, Kosova
Keywords: Grave, Kosovo, Tumuli
Presentation Preference - Oral

In this study will be treated the architecture of tumul and relation with funeral ritual. Characteristic of tumuli in Kosovo, especially
during the Iron Age when their number has increased, is building variety. There are even cases when in one necropolis are noticed
various types of tumuli. Tumuli in the territory of Kosovo are built with stones and soil; however, there are cases when the tumuli
are built only with stones, while the soil is used as an additional element. Moreover, when the tumul is 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 necropolis. Based on the construction, the graves can be classified
as of rectangular shape, oval, elliptical circular, semi-circular as graves with simple pit. Each type of grave will be treated separately.

Rituals and funerals ceremony will be also elaborated in this paper taking into consideration that during the ceremony and
burial are followed a number of rituals and funeral ceremonies starting by building the tumulus, opening the grave and the burial
process. Furthermore, even in the cases of cremation are followed a range of rituals and ceremonies.

The Esquiline (Rome). Urban transformation

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 retracing the steps of the reconstruction of the ancient topography and of the archaeological potential of
an area of Rome’s historic centre, which was the subject of a doctoral thesis in Methodology of the archaeological research, disputed
in february 2016 in the University of Sassari.

The case-study area is the Esquiline District, located at the south-eastern borders of Rome’s inner centre, in the Middle
Ages, and until the last decades of the XIX century. The Esquiline was a suburban area, where only a few religious complexes rose
up in a waste area occupied by gardens and orchards and then by the aristocratic villas built in the XVII century. The landscape kept
itself almost intact for centuries, as is shown in the historical cartography, from the XVII century bird’s-eye views to the
renowned 1748 Netoli map; this context changed sharply in a few years, when, in 1871, the city of Rome became the Capital of
the new united Italian nation, and a major building expansion completely transformed the face of the nineteenth-century city.
In the aftermath of art Unification, in fact, the landscape was heavily twisted, and a regular urban pattern completely erased the
original ancient morphology. In a few decades, between 1873, when the first town planning was approved, and 1930, when last
buildings’ construction was completed, the specifically created “Archaeological Commission”, headed by Rodolfo Lanciani, tried
to save from complete destruction the complex and extremely rich archeological context of the august Esquiline.

Archaeological findings were archived in the renovated in Lanciani’s “Forma Urbis Romana” and sometimes published in the journals
“Notizie degli Scavi di Antichità” and on the “Bollettino della Commissione archeologica comunale”. In the following
years, a lot of archive documents were dispersed in the archives of various State and Municipality offices. Thanks to this doctoral
research many of those documents are now accessible in a Open access web database, and this “lost archeology” is now accessible for researchers in a digital environment.

The biography of two Phoenician jars from the National Museum in Poznan

Author - Dr. Krueger, Michal, Adam Mickiewicz University in Poznan, Poznan, Poland (Presenting author)
Co-author(s) - Ghuzek, Inga, Nicolaus Copernicus University, Torun, Poland
Keywords: archaeometry, archival holdings, Phoenician pottery
Presentation Preference - Oral

In the National Museum in Poznan, Gotłuchów branch, two ancient jars of clearly oriental origin can be found. Neither the provenance,
nor the chronology of the artifacts is clear. This paper is willing to show that through archival, archaeometrical and
typological studies in is possible not only to determine the specific origin and dated chronology of the vessels, but also to
reconstruct an important part of their cultural biographies. The studies of the private correspondence from the end of the 19th
century between Izabela Dziełakowska, née Czarkowska, the buyer, and Alfred Louis Delattre, a French missionary and archaeologist
working in Cartagia, are revealing the context of acquisition of the artifacts. The archival holdings are clearly showing that:
the oriental art collection in Gotłuchów was much bigger than previously thought. What is more, the information given by A. L. Delattre
can be useful in determining the place where the jars were discovered. The vessels were also subject of recent archaeometric
studies (X-Ray fluorescence spectrometry and petrographic analyses) in order to get the basic information about their technology
and place of production. Having in mind this data, we are able to reconstruct the biography of the jars from their “birth”, through
their deposition in a tomb in Cartagia, ending in the art collection in Gotłuchów where they have been exposed as unrecognized
items. The promising results of this small-scale-intervention encourage the authors of this proposal to apply for a bigger research
project based on the pottery and archival holdings from the former collection of Izabela Dziełakowska.

The Prussia-Museum in Königsberg/Ostpreußen.

Author - Dr. Elbracht, Heidemarie, Museum for Vor- und Frühgeschichte, Berlin, Germany (Presenting author)
Keywords: pre-war archive, reconstruction of the archaeological landscape, research in former East Prussia
Presentation Preference - Oral

Up to World War II the famous Prussia-Museum in Königsberg kept a comprehensive archaeological fund which had been brought
together during more than 150 years of research from the end of the 18th centuries onwards. The fund included findings from
excavations as well as documentary record covering the entire region of the former province of East Prussia. After the war,
almost all collections were regarded as being lost but big parts have been rediscovered unexpectedly after the turnaround of
1989/1990 in Berlin, in Kaliningrad and in other places. The materials that remained are mainly fragmented and incomplete but
still bear witness of the intenseness of the pre-war archaeological research as well as of the richness and diversity of the historical
landscape in the south-western Baltic region. Since 2012 the “Academy of science and literature in 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?
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 Liubusów type.

The Oscar Almgren's Archive.

Oscar Almgren was one of the most famous archaeologists who dedicated his work to issues concerning the Iron Age. His PhD thesis Studien über nordnordeuropäische Fibelarten der ersten nachchristlichen Jahrhunderte mit Berücksichtigung der provinzialrömischen und südrussischen Formen was a milestone in the archaeology of the Roman Period. It was defended and published in 1897.

The significance of Almgren's work results not only from an in-depth analysis of fibulas but also from a wide territorial range of his research. In the end of the 19th c. this Swedish archaeologist studied finds present in at least 117 museums placed all over Europe. The private archive of Almgren is an important result of those studies. Currently it is held in the Swedish National Heritage Board (Riksantikvarieämbetet) in Stockholm.

Our paper will be one of the first presentations concerning the legacy of Almgren. His archive is a rich and diverse set of documents. Among others it contains press cuttings, letters, notebooks, manuscripts, as well as personal photographs. Emphasis will be put on presenting a card file (among other things so called Fibulabuch), which is the largest and the most complete 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, necklets or buckles and belt fittings), which is an important contribution to chronological and region 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

Herbert Jankuhn, one of the greatest, albeit most controversial characters of the 20th century German archaeology, is known primarily as a researcher of Hallstatt empire (Schleswig), or as one of the initiators of the new edition of the monumental Reallexikon der Germanischen Altertumskunde publication. However, it is worth to remember that the beginning of his scientific career (determined by his doctoral thesis submitted in 1931) was related to his home country – East Prussia.

The main subject of his doctoral thesis was the Early Roman Period in Samland. Nevertheless Jankuhn collected data from the whole region of East Prussia, going well beyond the scope of the defined geographic and time period. He created over a dozen hundreds of cards with notes and drawings, documenting 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, Jankuhn’s card files allow the modern researchers to reconstruct the archaeological picture of East Prussia during the Roman Period. First of all, long sequence of grave 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 Soudioni mentioned by Ploemey 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, Jankuhn’s registry was dedicated to research the Early Roman Period, it included also data on large series of finds from the Late Migration Period. One of the most interesting objects is the iron scabbard from Mazurian cemetery in Miejkie (former Mengers). Scandanavian 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

In the last 20 years, colleagues from Germany, Poland, Russia and Lithuania have collectively worked on the reconstruction of the archaeology 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 Köenigsberg (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 Ulberttir blades, what makes Linkuhnen the site with the highest number of Ulberttir 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.
Rooted in the past: A new chronological classification for the early medieval Tyne-Forth cemeteries

Author: Drain, Celia, Greenwich, United Kingdom (Presenting author)
Keywords: computer program, funerary practices, typology based chronology
Presentation Preference: Oral

Research surrounding typology based chronology in the early medieval period usually focuses on grave goods coinciding with specific funerary practices of Germanic populations. In the North of Great Britain, grave goods are not a part of funerary tradition. As a consequence, typology cannot be applied here, resulting in a lack of precision for the dating of cemeteries. Radiocarbon dating is also lacking, thus cemeteries are widely attributed to the 5-8th centuries. This paper explores the quality of early medieval funerary data in the Tyne-Forth region (Northeast England–Southeast Scotland), obtained from late 18th and early 20th century excavation. The graves and cemeteries of North-western Europe, with cemetery location being the latest criteria to receive consideration, present a new attempt at chronological classification for the cemeteries of the Tyne-Forth region. It proposes the combination of 46 descriptive criteria and the use of the computer program Amelai II, to compensate for missing grave-good data through multiple imputations, creating a new typology based chronology of cemetery sites for this region.

Excavating an Archive - The Irish Viking Graves Project

Author: Dr. Voss, Hans-Ulrich, Deutsches Archäologisches Institut, Frankfurt am Main, Germany (Presenting author)
Keywords: cemetery, Late Roman Iron Age, unpublished maps
Presentation Preference: Poster

The extensive working papers of Friedrich Lisch (1801-1883) on the late Roman Iron Age inhumation graves from Havn, Ludwigslust-Parchim District in western Mecklenburg, which are archived in Wilgard Castle north of Schwerin, provide a very interesting insight into the lively scientific exchange between Lisch and leading Scandinavian archaeologists such as Conrad Engelhard, Christian Friedrich Herbst, Hans Hildebrand, Jere Jacob Aarnusen Worsaae and others. The previously unpublished map of the site, drawn by Lisch’s son Friedrich Wilhelm Lisch in 1869, gives new and important information about the inner structure of the graveyard and its meaning for intra-Germanic relations between southern Scandinavia and Central Germany during 3rd century AD. The grave categories as well as the grave furniture can be clearly differentiated; some grave-shaft affinities with types found on Zealand in the North, while others are more similar to graves of the Hassleben-Leuna-group in Central Germany in the South. It seems that Havn was inf act a staging post between these two centres.

The gift of director of Königsberg’s Museum Bezenberger

Author: Dr. Khomjakova, Olga, IA RAS, Moscow, Russian Federation (Presenting author)
Keywords: collection, archive data, Prussian Cultural Heritage Foundation Archive, State Historical Museum
Presentation Preference: Poster

In holdings of State Historical Museum in Moscow an old plate with archaeological finds resides. It defined as «Archaeological collection from Etruscan graves of Italy, from different places of Germany and East Prussia» (Accession number 97174, List 1133/XXVIII), and consists of 27 items (a strands of beads and stand-alone beads). According to register and information at the plate, written in old Russian orthography, the collection came in to the Museum not as the result of II World War, but before 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: Reussen, Stobingen, Lötzen, Trausitten, Kalberg bei Rantau, Waaren, Molwiten, Grebieten, Daumen, Eschenort, that are correlate to the names of graveyards from East Prussia, that were excavated in second half and the end of 19th century. Finds from these graveyards kept in Prussia-Museum in Königsberg. Miserable, but curious data in register reads as it was "gift of director of Königsberg’s Museum Bezenberger" from «non inventory fund». A search of information about
Archaeology without borders

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 in 1919. After formation of the Academy of Sciences in 1932, a scientific archive of Ufa Scientific Center of RAS started operating. of Bashkortostan). Ufa provincial archives (now the Central Historical Archives of the Republic of Bashkortostan) started to be formed of the Regional Statistic Committee, since 1867 it became the Provincial Museum (at present - the National Museum of the Republic Library: Manuscripts). Archaeological information about the territory of the Bashkir Urals began to be collected in 1834, on the basis Sweden (The Swedish National Heritage Board / The Antiquarian-Topographical Archive) and Great Britain (Cambridge University the archives of the Republic of Kyrgyzstan), the archives of Finland (the National Library of Finland / Helsinki University Library), systematic mapping, identification and research of SW Courland archaeological monuments and find locations is carried out. The National History Museum of Latvia, Archaeological Department stores information about archaeological monuments and artefacts found across the territory of Latvia. The data chronologically covers a period from the end of 19th century to the present day. The largest amount of data originates from the interwar period, and it forms the basis for the documentation. During the work on the project Study of population and ethnic composition changes in southwestern Courland 1st millennium AD, systematic mapping, identification and research of SW Courland archaeological monuments and find locations is carried out. The work is based in the study of archives (National History Museum of Latvia archive contains information on approximately 200 archaeological monuments and locations of finds in SW Courland). During the course of the research, unexpected problems were encountered. Although the documentation of archaeological sites during the interwar period was generally precise, today part of the potential sites can’t be localised. This is mainly due to the loss of reported landmarks, changes in the terrain during the Second World War and the construction of Soviet military bases in the post-war period. The possibility of interviews is reduced by the depopulation of the region which continues until today.

Archival Archaeology: 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
Presentation Preference - Poster

The National History Museum of Latvia, Archaeological Department stores information about archaeological monuments and artefacts found across the territory of Latvia. The data chronologically covers a period from the end of 19th century to the present day. The largest amount of data originates from the interwar period, and it forms the basis for the documentation. During the work on the project Study of population and ethnic composition changes in southwestern Courland 1st millennium AD, systematic mapping, identification and research of SW Courland archaeological monuments and find locations is carried out. The work is based in the study of archives (National History Museum of Latvia archive contains information on approximately 200 archaeological monuments and locations of finds in SW Courland). During the course of the research, unexpected problems were encountered. Although the documentation of archaeological sites during the interwar period was generally precise, today part of the potential sites can’t be localised. This is mainly due to the loss of reported landmarks, changes in the terrain during the Second World War and the construction of Soviet military bases in the post-war period. The possibility of interviews is reduced by the depopulation of the region which continues until today.

International cooperation of archives in the study of archeology of the Bashkir Urals

Author: Shusteva, Is, Ufa, Russian Federation (Presenting author)
Keywords: archives, international cooperation
Presentation Preference - Poster

The issue of fragmentation and disparity of archaeological documents stored in the archives of the Republic of Bashkortostan was raised in the beginning of the 1990s. Data restoration about archeological monuments and finds of the Bashkir Urals was made possible owing to international cooperation. Materials about the region’s archeology were stored in the archives of the former Soviet Union (the archives of the Republic of Kyrgyzstan), the archives of Finland (the National Library of Finland / Helsinki University Library), Sweden (The Swedish National Heritage Board / The Antiquarian-Topographical Archive) and Great Britain (Cambridge University Library: Manuscripts). Archaeological information about the territory of the Bashkir Urals began to be collected in 1834, on the basis of the Regional Static Committee, since 1867 it became the Provincial Museum (at present - the National Museum of the Republic of Bashkortostan). Ufa provincial archives (now the Central Historical Archives of the Republic of Bashkortostan) started to be formed in 1919. After formation of the Academy of Sciences in 1932, a scientific archive of Ufa Scientific Center of RAS started operating. Such diversity of the archives led to fragmentation of archaeological materials and sometimes even to their loss. Reorganization of the archives and document funds often results in loss of archaeological documents. Part of the archaeological archive materials 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 Voskresensky plants (05.09.1913), and E.H. Minns was discovered. Another significant impact on the preservation of archival archaeological sources was the period of the late 1930s - the period of repressions, during which not only the field diaries were destroyed, but also the correspondence of repressed archaeologists. It is wrong to claim that archaeologists in the USSR completely stopped communicating with foreign colleagues and were not interested in foreign publications and foreign archival funds. But this scientific communication was of “shaded” and secret character. It is impossible to restore the disturbed dialogue of Russian and West-European archaeologists without the employees of archives and funds of European countries. Thus, the restoration of the lost archived information is possible only through international cooperation.

Archival Archaeology, systematic mapping, identification and research, SW Courland

Archival Archaeology:
Cultural resilience and adaptation at the frontier: Klaipėda and Žarde pottery analysis.

Keywords: European, Lithuania, Medieval Archaeology

Presentation Preference - Committee / Working Party meeting

The forum of the MERC (Medieval Europe Research Committee) is an annual meeting held at EAA to promote active archaeological research in the medieval period (AD 400-1600) in every country in Europe. It is the intellectual successor to the series entitled Medieval Europe, inaugurated at York in 1992, and staged at Bruges in 1997, Basel in 2002 and Paris in 2007. A change of direction occurred in 2012 when new thinking suggested that medieval archaeology would develop more powerfully within the broader ambit of prehistoric and historic archaeology as a whole. Accordingly the representatives of the conference accepted an invitation from EAA to merge the two conferences. This duly occurred at Helsinki and has continued since then. The Medieval agenda is promoted by MERC, which views itself as in academic partnership with EAA. The purpose of the forum is to:

- Highlight the performance of medieval archaeology in the host country
- Highlight the medieval and medieval-related sessions at the conference
- Table new research themes pertaining to Europe with special emphasis on links with prehistory
- Debate new initiatives for teaching, publication and publicity for the subject

The discussions aim to connect medieval archaeologists working in the academic, government and commercial sectors and to encourage students to research the period by attending the EAA conference and our Forum. In addition to invited speakers and speakers from the floor, the Round Table will be hosted by Dr. Dries Tys, Dr. Gitte Hansen, Dr. Sally Foster and Dr. Katarina Predovnik.

Keynote Speakers:

- Lithuanian medieval archaeology, Prof. Kuncavicius, Abinas (Vilnius University, Lithuania)
- Early medieval horse cemeteries of Prussia and Central Lithuania on a comparative scale: Dr. Shiroukhov, Roman (University of Fribourg, Switzerland)
- Cultural resilience and adaptation at the frontier: Klaipėda and Žarde pottery analysis, PhD student Ubis, Edvinas (Klaipeda University, Lithuania)
- Future archaeologies of the “Great Wilderness”: Crusading, depopulation and colonisation in the frontiers of Lithuania, Dr. Pluskowski, Aleks (University of Reading, United Kingdom)
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 Marganica 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 aluvial 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 (2400-1950 BCE), and the southwards shift of the barcanyr of the settlements at the end of the Late Bronze Age (1950-1500 BCE) and the beginning of the Iron Age (1300-900 BCE), were strongly connected to water management. Despite the analysis of the ancient Murghab aluvial 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 Topgul 1, Adj Ku 1 and the nomadic site area of Site 1211-1219 and Ojakyl. 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 Buiceka, Nazarij, 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 Kańm since 1995. Due to field surveys conducted here since 2007 above 170 sites of different periods were discovered, which enabled the study of oldest settlement pattern and the water management system in particular periods. The best recognized oldest settlement pattern currently is the Iron Age (Yaz culture).

Above 700 sites with the characteristic pottery of Yaz I-II periods (circa 1400-330 BC) have been discovered in Central Asia, especially in the area of modern Turkmenistan by various studies carried on since the beginnings of the XX century. Many of the sites were 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.

Water management system of the Serakhs oasis is one of the most important subjects of study of the mission. The research 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 elevves are used followed by deep analysis of landscape taphonomy of Serakhs oasis. The paper concentrates on the water management in the Yaz I-II periods, which is especially important for understanding how water management changed in comparison to the later periods. The future areas of study are also indicated.

**TH6-08 Abstract 04**

**Examining Holocene Socio-Hydro Landscapes in the Gobi Desert, Mongolia**

**Author** - Holguin, Leah, University of Southampton, Southampton, United Kingdom (Presenting author)

**Keywords** - Holocene desert hydrology, Human-Environment Interactions, Mongolian Neolithic

**Presentation Preference** - Oral

Archaeology traditionally views social progression as a linear trajectory, where hunting and gathering and nomadic pastoralism are stepping stones to sedentary lifeways 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 reversion may have been related to profound environmental changes occurring at this time and further examining this may help us to understand how human societies adapt to changing levels of uncertainty about resource availability. This will be examined through the changing Holocene landscape dynamics around the Ulan Nuur paleo lake and paleo hydrological system located in the Gobi Desert of Omnogovi province, Mongolia. By examining this Holocene socio-ecological landscape, it may provide clues to how the changing hydrological system may have influenced resource availability, which in turn, may have affected local subsistence strategy choices.

**TH6-08 Abstract 05**

**The archaeology of water management in context of west Khorsan, Tapeh Damghani, Sabzevar city**

**Author** - Garazhian, Omen, Neyshabour, Iran (Presenting author)

**Keywords** - Bronze Age excavation, northeastern Iran water resources

**Presentation Preference** - Oral

Located on the edge of an alluvial fan near Sabzevar city in Iran, Tapeh Damghani is an archaeological site containing late Chalcolithic and early Bronze Age evidence. The surveyed site is 100 hectares, and excavations were conducted on the 6-hectare core of the site, at the end of the slope towards the Kal Shir river. The excavation was conducted over two seasons. During the second season, the excavation concentrated on four workshops. The northern ones, workshop II and III, revealed a series of brick walls. These walls were buried under two meters of natural deposits caused by floods from the 2nd millennium BC, leading to excellent preservation. The context and architectural construction suggest that these walls are the remains of water resource management structures: preliminary dams for controlling river flooding, obtaining surface water, and redirecting water to channels. This research will examine evidence from Workshop II and III of Tapeh Damghani in the context of site location, landscape and environment that suggest adaptive methods of water control. The excavations are supported by the City Museum of Sabzevar, which is planning to develop an open-site museum by the Tehran-Mashhad highway.

**TH6-08 Abstract 06**

**The Spread of Fruits along the Silk Road**

**Author** - Dr. Spengler, Robert, Washington University in St. Louis, Lancaster, United States of America (Presenting author)

**Co-author(s)** - Dr. Frachetti, Michael, Washington University in St. Louis, Lancaster, United States of America

**Keywords** - Agricultural Spread, Archaeobotany, Silk Road

**Presentation Preference** - Oral

The Great Silk Road was the largest commerce network of the ancient world. It linked the disparate ends of the vast Eurasian supercontinent and in doing so connected the imperial centers of East and southwest Asia. While organized trade, including military outputs and government taxation, along the Silk Road dates back to the Han Dynasty (206 BC–AD 220), the exchange of goods, ideas, cultural practice, and genes, through the thousands of kilometers of desert and mountainous expanses comprising this region dates back to the third millennium BC. Over the past two millennia, the ebb and flow of cultures directly shaped the trajectory of human history in myriad ways, including by spreading agricultural practices and crop varieties. Among the many goods that moved along the Silk Road were a wide variety of plants, including many of the fruits that are familiar to us today. Archaeobotanical research at the Tashbulak archaeological site (A.D. 900–1200) is illustrating the importance of these crops in Central Asia during the height of Silk Road exchange, during and shortly after the Tang Dynasty (A.D. 618–907). The site was occupied by people in the 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 fruits and grains available in markets along the Silk Road. Archaeobotanically tracing the path that plants followed on their long journey across Central Asia, provides us with a map laying out the early routes these foods took to ultimately reach our dinner plates today.
TH6-09 Abstract 01

Studie on remains of daily activities from the LBK Neolithic settlement

Author - Michalak, Katarzyna, University of Gdańsk, Gdańsk, Poland (Presenting author)

Co-author(s) - Potoczyński, Łukasz, University of Gdańsk, Gdańsk, Poland

Keywords: activity zones, processing of food, social relations

Presentation Preference - Oral

This paper focuses on aspects of identification of activity zones around LBK longhouses discovered at the multi-phase Neolithic settlements in southern Poland.

Studies on the spatial and functional diversity of features located around the longhouses as well as quality and quantity of artefacts found there (pottery, fleeks, 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/kichen zones that have been used to daily activities and have been probably shared by inhabitants of contemporary houses enable deeper insight into social patterns and complexity of social relations. The recognition of domestic area related to processing of food seems to be also especially important to further studies on gender relations.

Another aspect of the study is to emphasize a possible limitation of recognition of activity zones because of long-term deposition process and the overlapping of various activity zones that can be problematic during analysis of the domestic artefacts recorded at the multi-phase settlements.

TH6-09 Abstract 02

Tell me who is living here... Some considerations on people living in Concise, a Swiss Neolithic site

Author - Post doctoratle Chéquet, Patricia, Muséum d’histoire naturelle, Genève, Switzerland (Presenting author)

Co-author(s) - Bürri-Wyser, Elena, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland

Co-author(s) - Winger, Ariane, Etat de Vaud, Sipal, Archéologie cantonale, Lausanne, Switzerland

Keywords: lake dwelling, Neolithic, session, tasks sharing

Presentation Preference - Oral

Studies of the Middle Neolithic lake dwelling of Concise (Switzerland) are expanding year by year, with more fine assumptions about the spatial structures of the villages, the identity of the actors of the material culture, the history of the populations... The architecture of some villages is known as well as the material culture which contains in some cases a mixture of components NMB from Franche-Comté and the Swiss Plateau Cortaillod. The spatial distribution of remains between activity areas common to several houses and domestic waste in each house shows an essentially domestic economy, but there are also synergies by groups of houses for some components. The analysis of these distributions has led us to propose a gendered tasks sharing. In this general atmosphere of domestic subsistence, two buildings appear to have a particular function.

TH6-09 Abstract 03

Traces of households, activity areas and social inequality in a Late Copper Age site in Hungary

Author - PhD Főrjesz, Szilvia, Hungarian National Museum, Budapest, Hungary (Presenting author)

Co-author(s) - Serlégi, Gabri, 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 interpretable 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. My work aimed at the identification of the spatial and temporal limits of households and to determine the remains of which activities within a household have been preserved. The interpretation and comparison of these hypothetical households as units and scenes of social and gender inequality was carried out from a variety of standpoints: among others from that of consumption, specialization and diversity. The starting point of the research is provided by the finds and observations on settlement structure made during the excavations at a Copper Age site. The study of the site is complemented by natural scientific – archaeological, anthropological, petrographic, geochemical, and radiocarbon dating – analyses, and environmental archaeological data from the region Transdanubia in Hungary. The proceeding of the finds was followed by the detailed qualitative and quantitative analysis of the materials of the pits and the pits themselves (correspondence analysis, one-way correlation analysis) according to the observed groupings. With the help of the spatial statistical and GIS analysis of the finds, the mapping of the distribution of the finds enabled the quantitative and qualitative study of the various classes of finds, which could help us to shed light on the distribution of activities and traces of social inequality taking place within and outside the households.

TH6-09 Abstract 04

Culture and society of a Hellenistic site: houses and artefacts of Sicilian city of Finziade

Author - Researcher Toscano 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-I 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 acronyms of later 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 doeks as well as the functional ceramic sets to the preparation, the service and food consumption. The most important rooms of the houses have also returned the wall decorations and floor of great value, which are an indicator of the medium-high socio-economic conditions of the owners.

Particular attention will be devoted to domestic cults, in fact every house possessed an environment characterized by the presence of an altar complete with artefacts relevant to the performance of rituals, demonstrating a particularly common practice.
Women to the front! Women to the front?

Author: Baurer, Anna, Wien, Austria (Presenting author)

Keywords: female soldiers, Gender, woman and war

Presentation Preference: Oral

We have found women burials that can be dated to the early middle ages. Surprisingly these burials don't show the typical grave goods for women like pottery or jewellery instead weapons were found. The archaeological research has difficulties to accept these burials as women tomb because the grave goods are typical for man ones. The anthropologist results were ignored and the female skeletons were declared to be male ones. Supporting their decision by saying that during the early Middle Ages the social gender is not like the biological gender. Anyway, women with weapons are not known just for the early middle ages but also in the 5-3 Century BC. in the Asiatic/Russian area.

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 to fulfill the stereotyped of womanhood. Men were shocked when they found out that they have fought against women. The reasons why a woman joined war are various: poverty, a bad childhood, desire for adventures or a problem with their natural gender. With the beginning 20th century emancipation was another reason why women turned into army service. At the first World War it was emancipation which brought woman to the army. When war was nearly over woman had to leave the army and be again a housewife and mother. Their performance at war was not remembered and the women where left alone with their troubles and trauma.

An indirect reason why a young woman might have joined the army could be the grave goods of female babies. In the early Middle Ages 2400 solidi were paid for a baby girl and 600 solidi for a baby boy. From this forced marriage can be deviated their troubles and trauma.

An escape by divorce was for the womenfolk mostly not possible due to laws or social grounds.

The trap for the weapon must have been for some women or girls the escape from a forced marriage.
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)** - Cordoba 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. Vaschabko, Christophe, ISEM UMR 5545/L43M UMR 7288, Montpellier, France (Presenting author)

**Keywords** - Anthropology, Craft, Fuel

**Presentation Preference** - Oral

During historical times, fire was one of the main energy used for industry, craft and domestic activities. For the past 30 years, anthropological analyses were realized in Mediterranean France on nearly 80 ancient, medieval and modern sites. If several activities are now well documented (charcoal and lime burning, pottery, cremation), no global approach has been attempted so far. An inventory was realized, based on a broad range of activities (ceramic, charcoal, lime, vegetal exsudates, 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, anthropologists consider that their data only reflect the choice of the craftsmen and the ecological constraints. But it appears that the role of land/forest owners, who managed the fuel resources, has never really been discussed or taken into account. This communication will propose a first discussion on the subject. Studies of multi-craft sites will be presented, as well as examples of “gestion sur pied” (division of the same site or of a same area in order to observe different activities). Recent methodological developments will be introduced, such as the restitution of calorifiers or the observation of tools marks, bringing information on the preparation of the fuel. By crossing anthropological data with medieval and modern tests, a socio-professional approach of the preparation of the fuel will also be possible. At last, the energetic transition towards the use of fossil charcoal will also be attempted.

**TH6-10 Abstract 04**

**Fuel Selection and Forest Management by Middle Age Belgian Brass Blacksmiths Along the Meuse River**

**Author** - Dr. Chevalier, Alexandre, Royal Belgian Institute of Natural Sciences, Bruxelles, Belgium (Presenting author)

**Co-author(s)** - Thomas, Nicolas, Laboratoire de médiévistique occidentale de Paris – Université Paris I, Paris, France

**Keywords** - Blacksmith, Fuel, Medieval archaeology

**Presentation Preference** - Oral

The influence of the Mosan copper and alloy industry, in particular brass production during Middle Age Western Europe, is an irrefutable historiographic fact. Cautions, bowels, and pans produced in the town of Dinant as well as in the nearby Bouvignes, were exported throughout French and English kingdoms, as far as Barcelona in Spain. In the 15th century, copper alloy artifacts produced in the Dinant region were so highly prized and considered that the town’s name of Dinant was used in Paris to designate the boilemakers, or the dinandiers (coppersmiths).

Cooper metallurgy in the Meuse region dates back at least to the Merovingian dynasty, with a workshop uncovered in the town of Namur at the “Grognon” site, dated to the 6th century. The copper metallurgy boom around 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 Dormund for copper supplies and with London for tin supplies, overcame the natural limitation. In addition, merchants established specific privileges with the German towns, while a charter allowed them to establish a trading post on the Thames River. The dynamism of the Mosan merchants cannot however explain this metallurgical 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, that is appropriate to build bricks, hearts, smelters and molds. Copper and brass production however ends abruptly in 1466 in Bouvignes, property of the earlom of Namur, and in 1554 in Dinant, property of the prince-bishop of Léguer, when the two cities were destroyed 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 Porte Chevalier, Dinant Olibats, Dinant Rateau and Dinant Churchill – that represent 13 different coppersmith workshop spaces dated between the 13th and the 16th centuries. Because Dinant and Bouvignes were competitors and depended on two rival political entities, our results are highly significant in terms of territory exploitation and cultural identities along the Meuse River.
Between the 18th and 20th centuries the Limousin region was notably lacking in woodland: the level of forest in the landscape was less than 10%. However, it was during this period that the development of the Limoges porcelain industry, a major fuel consumer, took place. Alongside this industrial boom, the urban population was also thriving, thus the need for fuel in the city became even greater.

The 19th century was a period that put great pressure on firewood resources and one wonders how, and to what extent, the population and industry in the city of Limoges were able to meet their considerable fuel requirements. We therefore look at sources that can better trace the evolution of fuel consumption in Limoges. By combining historical sources, we analyse the heavy fuel consumption of the city of Limoges in relation to resources available in the region and describe the different procurement strategies implemented. The importance of the porcelain industry is discussed and we make a start on the evolution of the wooded landscape in the Limousin.
Many of the 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. It is 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 - Charniauski, 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 (Lakesh region)
Presentation Preference - Oral
Kryvina peat-bog is an archaeological microlocus located in Vitebsk region of the Republic of Belarus (south of Belarusan 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 area are presented by the materials of 3rd - first half of 2nd millennium BC which belongs to Usvyaty and North-Belarussian cultures. 9 monuments preserve organics in the cultural layers, 8 of them are peat-bog sites. The most studied settlements of the micro-region are Krivina 1, Asaviec 2 and Asaviec 7 settlements. Since 2018, the Asaviec 2 settlement was annually researched by the joint expedition of the Institute of History of NAS of Belarus and the Faculty of History of Belarus State University under the guidance of Michal Charniauski and Maxim Charniauski. In the southern part of the site 27 square meters were excavated. The use of new approaches in the field studies and the analysis of the received materials (in comparison with former methods) has allowed to clarify and obtain new information on the household, material and spiritual culture of the population of the region. We should also mention the identification of the immediate materials of the circle of Corded Ware cultures and the Globular Amphora culture on the settlement, which allowed to reconstruct the process of transformation of Usvyaty culture into the North-Belarussian culture in the region.

TH6-11 Abstract 04
Landscape and natural resources use in the 3rd mill BC by pile-settlements' dwellers in NW Russia
Author - Masurokhiev, Andrey, the State Hermitage Museum, Saint-Petersburg, Russian Federation
Co-author(s) - Kittel, Piotr, Lodz University, Lodz, Poland
Co-author(s) - Magrot, Yolaine, UMR 8215, Université de Paris 1-CNRS, Paris, France
Co-author(s) - Kulko, Merlinia, Herzen State Pedagogical University, Saint-Petersburg, Russian Federation
Co-author(s) - Dolyukovsky, Eugene, State Historical Museum, Saint-Petersburg, Russian Federation
Co-author(s) - Dibovskova, Ekaterina, The State Hermitage Museum, Saint-Petersburg, Russian Federation (Presenting author)
Co-author(s) - Batkin, Michail, Zoological Institute of RAS, Saint-Petersburg, Russian Federation
Co-author(s) - Lysakiewicz, Elona, Institute of History BAS, Minsk, Republic of Belarus
Co-author(s) - Regert, Martine, UMR 7264 UNS - CNRS, CEPAM, Nice, France
Co-author(s) - Mazuy, Arnaud, UMR 7264 UNS - CNRS, CEPAM, Nice, France
Presentation Preference - Oral
The lacustrine pile dwellings, appeared at the first half of the 4th mill BC, were unique sites among the Middle Neolithic cultures of the forest zone of northeastern Europe. Spatial analysis of lacustrine pile dwellings in the study area reveals a clear subsistence pattern based on catchment area, included three distinct landscape types: 1) depressions with lakes, mires and valley floors with peat soils and mud soils; 2) moraine plateaus with predominantly clayey soils covered by broad-leaved trees; 3) glacioluvial outwash plains with sandy, podzolic soils. The combination of these types of landscape made possible a hunter-gatherer economy and strongly contributed to the settlement system at this time. Decrease (period?) of lake water level and development of fluvial system in places can be also supposed. Only specific types of landscapes with high geodiversity were chosen for settlement, whereas the rest of the region was uninhabited. It also explains the long duration of pile dwellings in one place. The archaeological and zooarchaeological records indicate the year-round procurement of meat and fur animals as well as fish and water birds. A variety of natural resources were used, besides hunting and fishing: different berries, hazel nuts, water chestnuts, acorns, etc. Also bones of domesticated animals, as well as tools for agricultural activity and grains of Cerealia in pollen diagram, were found. However, the latter did not play a major role in the economic system. A range of food resources used could be also evidenced through chemical analysis of organic crust on the pottery. Different types of wood were used for tools' making, dwellings' construction and for fire-places. Different raw materials' resources availability was estimated with the use of GIS-techniques.

The pile dwelling settlements were situated at the boundary of different landscape types that provided the basis of a productive hunting and gathering economy, and supplied as a resource for different wood, plant and bone material, raw materials for pottery making. It remained the typical settlement pattern for over a millennium. The inhabitants of such settlements left a unique material culture with a particular toolkits and pieces of art.

TH6-11 Abstract 05
Pile dwellers in the Sukhona basin?
New Russian-German research at Veksa, Northern Russia
Author - Dr. Plezona, Henny, German Archaeological Institute, Berlin, Germany (Presenting author)
Co-author(s) - Dr. Niedominka, Nadieżda G., Volgoda State Museum, Volgoda, Russian Federation
Co-author(s) - Dr. Haufner, Katharina, German Archaeological Institute, Berlin, Germany
Co-author(s) - Prof. Dr. Kirkeis, Wiesek, Institute of Pre- and Protohistory, Christian Albrechts University Kiel, Kiel, Germany
Co-author(s) - Dr. Lorenz, Sebastian, Institute of Geography and Geology, University of Greifswald, Greifswald, Germany
Co-author(s) - Dr. Wieczorewska-Lüth, Magdalena, Institute of Pre- and Protohistory, Christian Albrechts University Kiel, Kiel, Germany
Keywords: Neolithic, Northwest Russia, Pile concentration
Presentation Preference - Oral
The settlement remains of Veksa c. 400 km north of Moscow represent a pivotal site with regard to the cultural development in northeastern Russia. Extending along the left bank of River Vologa in the Sukhona basin, the site is located at an important river confluence. Its exceptional significance is due to the clearly stratified sequence of archaeological layers up to 3 m thick which encompasses all periods from the Early Neolithic through to the Medieval period. Veksa yields the rare opportunity to follow the local culture, typological and economic developments and their links to environmental history over eight millennia. A multidisciplinary Russian-German field project led by Volgoda State Museum and the German Archaeological Institute started in 2015. It combines archaeological research with archaeobiology, palaeoecology and dendrochronology in order to generate new high-quality data on human-environment interactions at Veksa on a diachronic level. Stone Age remains are especially well preserved at Veksa due to partial water-logging. They include a concentration of almost 2000 wooden stakes and piles standing upright in several clusters along a 350 m long stretch of the river bank. Radiocarbon dates place the main concentration in the Late Neolithic around 3000 BC. Thus, the concentration of wooden piles at Veksa is chronologically associated with a period of pile dwelling construction in the Late Stone and Early Metal Ages noticeable from the Alps in the south-west to the eastern Omega region in the north-east.

During the field work in 2015, a test trench was excavated within the pile concentration, yielding 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-mains 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.

TH6-11 Abstract 06
The Neolithic and Early Metal Age wooden construction of site Okhta 1 in St. Petersburg (Russia)
Author - Dr. Gusevtova, Tatiana, Scientific and Research Institute for Cultural and Natural Heritage, Saint Petersburg, Russian Federation (Presenting author)
Co-author(s) - Sorokin, Petr, Institute of Material Culture Russian Academy of Science, Saint Petersburg, Russian Federation
Keywords: Neolithic sites, Early Metal Age, wooden construct
Presentation Preference - Oral
The Neolithic sites Okhta 1 is first archaeological object with gut preserved wooden construction in St. Petersburg region. The territory of sites was occupied by ancient people several times during the Neolithic Age – in the Early Metal Age periods – from 4000 to 2500 BC. The cultural layers of the prehistoric settlements are situated under alluvial sandy sediments 1-1.5 m thick, which lie under the buried soil of the Middle Ages. Features of the microlrelief of the site, its stratigraphy and archaeological observations allowed us to select an earlier coastal fishing zone located on the coast of the gulf, and a second fishing and living area, connected to river channels. The archaeological collection includes archaeological finds: pottery, stone tools, products of organic matter and wood, and amber jewelry.
The lower cultural layer contains over 30 concentrations of structures with well-preserved converted wood: stakes and masses of splinters. Most structures were located in hollows of various shapes and sizes. The hollows may have been left over in former river arms flowing into the lagoon or have been formed on the river bottom. The length of the stakes may vary from 0.5 to 2.5 m; their thickness is 0.5–1.0 cm. Other constructions, which constitute the majority, have a fence-shaped or mat-shaped; their sizes are from 1.05 m to 2.30 m to 2.20 m. The number of splinters in such areas reaches 27–80 units. The splinters were laying in one to eight rows. The preserved length of the splinters varies from 1.5 to 2.80 m.; their width varies from 1.2 to 4.5 cm; their thickness is from 0.2 to 1.8 cm. The distance between the splinters in a construction was 1.5–2.5 cm. They were bound together with either ropes or black willow twigs. According to radio carbon tests and dendrochronology tests of the wooden structures, these structures date back to mid 4th – mid 3rd millennium BC. Research has shown that site Oktima I had been an actively used fishing site on the sea shore during several millennia. The fishing site was equipped with fishing devices, pile-supported platforms, and buildings.

TH6-11 Abstract 07
Characterization of activity areas in the early Neolithic site of La Draga (Spain)

Author – Dr. Piqué, Raquel, Universitat Autònoma de Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s) – Morena, Nagia, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s) – Barceló, Joan Anton, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s) – Bodganovic, Igor, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s) – Palomo, Antoni, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s) – Reverte, Jordi, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s) – Sarafi, Maria, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s) – Terradas, Xavier, Universitat Autònoma de Barcelona, Bellaterra, Spain
Keywords: Activity areas, Neolithic, Spatial analysis

Presentation Preference – Oral

The early Neolithic site of La Draga is located on the shore of Lake Banyoles, in north-east of Iberian Peninsula (Spain). The site has provided evidences of two phases of occupation dated between 5300-4700 cal BC. The preservation of the site differs depending on the proximity to the lake. In some parts of the site a layer of well-preserved wood has been documented, corresponding to the earliest phase. In other sectors only the tips of the poles stuck in the lacustrine chalk are preserved. The spatial analysis of the remains recovered at the site aims to identify possible areas of activity and characterize them. In-situ spatial analysis of different categories of remains have been explored in order to set boundaries and relationships between different spaces.

TH6-11 Abstract 08
Wood architecture in the Early Neolithic (5300-5000 cal BC) site of La Draga (NE of Iberia)

Author – Dr. Oroz, López-Bultó, Universitat Autònoma de Barcelona, Barcelona, Spain (Presenting author)
Keywords: Early Neolithic, Iberian Peninsula, Pile-dwelling

Presentation Preference – Oral

La Draga is the only Neolithic pile-dwelling site of the Iberian Peninsula. It is located on the shore of the Banyoles Lake (Girona, Spain) in the North-east of the Iberian Peninsula. The site was occupied during early Neolithic (5300-4900 cal BC). The remains of wood recovered at the site have been studied with the objective of characterizing the wood management process: obtaining of raw material, woodworking technology and the use as tools or construction elements. All this process is usually hidden for the archaeologist, but its economic and social implications are of great relevance. The analyses of wood elements had been carried out involving a wide range of different methodologies: dendrology, description of morphology, experimentation, tool-marks, use-wear and 3D modeling.

In this work are summarized the result of the analyses of the architectural elements. We’ll outline the main characteristics of the building process of the wooden constructions at La Draga, from the obtaining of the raw material to its use for architecture, through its elaboration process. The analysis of architectural elements (beams, posts, planks, framework, etc) show in one hand the predominance of certain species of raw material, season of obtaining, diameters and supports selected. In the other hand it has been spotted certain predominance on the elaboration process. Finally, a few master lines of the construction structure have been spotted.

TH6-11 Abstract 09
Dry land and lakeside settlements in the region of Four Lakes at Amindeon Basin (Greece)

Author – Dr. Chrysostomou, Panikos, Greek Ministry of Culture and Sports, Florina Ephorate of Antiquities, Florina, Greece (Presenting author)
Keywords: Western Macedonia

Presentation Preference – Oral

The surveys and excavations of the last years in Amindeon region conducted by Florina Ephorate of Antiquities, resulted in the discovery of several prehistoric dry land and lakeside settlements dated from the late 7th to the late 2nd mil. BC. Some prehistoric lakeside settlements 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 cultural variety has been 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 toward central and northern Europe. The location of the settlements confirms the special relationship that local neolithic communities developed with wetland environment, an interaction established with an impressive adaptive capacity throughout prehistory. Even during Early and Middle Neolithic periods (mid of 7th – mid 6th mil. B.C.) - as documented by the excavational data from the settlements Anarghíri XI and Anarghíri XIII – some basic choices regarding the construction and organization of habitation's space refer to dry land occupation - the proximity of those settlements to the adjacent marshes necessitate the adoption of building techniques similar to pile dwellings. At late 6th mil. B.C. the occupation of the lakes and marshes' shores is intensified, resulting the establishment of several lakeside settlements. The most recent partial or total excavation of some of these and the investigation of extended destruction layers, numerous structural elements and artifacts of various organic materials, yielded new data to the prehistorical research of the region. The preliminary study of the evidence from the lowest waterlogged layers of Limnichori II, Anarghíri Ila and Ib refers to dwellings built on water or by the shores, with a wide range of construction techniques exploited for flooding, waiting, roofing etc. Especially the on-going large scale rescue excavation at Anarghíri Ila has so far yielded some impressive wooden structures referring to an organized communication and defense of 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, formulate a unique data set for the research of pile dwellings in Southeastern Europe and beyond.
A research project focusing on Lake Degersee in Southern Germany revealed settlement activity and land use in the hinterland of Lake Constance older than the onset of the pile-dwelling period at Lake Constance in the 40th century BC. The outcomes of recent archaeological and palynological investigations suggest new settlement sites and human impact dating back to the 5th millennium (see contribution of Mainberger, this session). Within the tri-national project ‘Beyond Lake Villages – BELAVI’ palaeoenvironmental onsite and off-site data from the Western Altgäu region are synchronised with archaeological records. The chronological basis and with it the relation to regional and over-regional vegetation and climatic records is established by high-resolution pollen, charcoal and sedimentary records on annually laminated lake sediments, dendrochronology, and AMS radiocarbon dating. With regard to the results of plant macrofossil and pollen analyses on the cultural layers at Degersee, we expect to provide further evidence of changes in subsistence strategies and landscape management in response to environmental and climatic changes throughout the Neolithic period.

Dendrochronology provides information on woodland management of settlers at the periphery of Lake Constance. Main construction timber at Degersee comes from ash trees, and tree ring patterns show a cyclic settlement activity with repeated usage of small woodland plots with intermittent fallows. Wood 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 charcoals can give further chronological as well as information on prehistoric vegetation cover.

---

**TH6-11 Abstract 13**

**Neolithic environment and subsistence in the Western Altgäu – first results of the BELAVI project**

**Author:** Dr. Wick, Lucia, Landesamt für Denkmalpflege, RP Stuttgart, Gaienhofen-Hemmenhofen, Germany (Presenting author)

**Co-author(s):** Maier, Ursula, Landesamt für Denkmalpflege, RP Stuttgart, Gaienhofen-Hemmenhofen, Germany

**Co-author(s):** Neile, Oliver, Landesamt für Denkmalpflege, RP Stuttgart, Gaienhofen-Hemmenhofen, Germany

**Co-author(s):** Vogt, Richard, Landesamt für Denkmalpflege, RP Stuttgart, Gaienhofen-Hemmenhofen, Germany

**Keywords:** human impact, Neolithic land use, subsistence

**Presentation Preference:** Oral

---

**TH6-11 Abstract 14**

**The Neolithic Landscape of Westallgäu Region – first results of BELAVI in Southern Germany**

**Author:** Dr. Mainberger, Martin, Landesamt f. Denkmalpflege Baden-Württemberg, Staufen, Germany (Presenting author)

**Keywords:** Cultural landscape vs Aquatic landscape, lake shore settlements, Neolithic

**Presentation Preference:** Oral

Precisely dated, laminated lake sediments contain an amazing wealth of archaeological background data. If their palaeoenvironmental, palaeoeconomic and palaeoenvironmental information can be exactly paralleled to waterlogged archaeological evidence from lake shore sites, a dataset on human activities in landscapes far beyond the lake shores is generated. This is the core outcome of a research project completed in 2015, focusing on the small Degersee Lake in South Western Germany. The Degersee project triggered not only a whole series of new discoveries, but also the design of the tri-national Beyond Lake Villages - Project (BELAVI), which started in 2015. The German working – group focuses on the Stone Age of Western Altgäu, a pre-alpine region between Lake Constance and the European Watershed between Rhine and Danube River systems. Topographic and hydrographic models illustrate that in the Holocene the landscape was characterized by woodlands growing up on drumlin rows and moraine belts, and by an entanglement of lakes, bogs, lowlands and water courses. The archaeological assessment of the Western Altgäu region is based on a concept of complementary components, with the cultural landscape dominated by farming activities on one hand, and the aquatic landscape with their benefits in respect to foraging, settlement-building, and communication on the other. The presentation will provide with initial results of the GIS - supported landscape analysis and first outcomes of 2015 and 2016 field campaigns.

---

**TH6-11 Abstract 15**

**Beyond Lake Villages in the Neolithic of Austria**

**Author:** Kerstin, Kowarik, University of Vienna, Vienna, Austria (Presenting author)

**Co-author(s):** Klammer, Julia, University of Vienna, Vienna, Austria

**Co-author(s):** Sedl d'Foronza, Helena, University of Vienna, Vienna, Austria

**Co-author(s):** Maurer, Jakob, University of Vienna, Vienna, Austria

**Co-author(s):** Dvorosky, Cyril, Kuratorium Pläthbauen, Vienna, Austria

**Co-author(s):** Haas, Jean Nicolas, University of Innsbruck, Innsbruck, Austria

**Co-author(s):** Taylor, Timothy, University of Vienna, Vienna, Austria

**Presentation Preference:** Oral

Austria's prehistoric lake village sites have been known for over 150 years. Research in the 19th and 20th century identified a number of prehistoric lacustrine structures, with rich cultural deposits. But research into Austria’s Pfahlbau (pile-dwelling) phenomenon has been characterized by discontinuity and modern transdisciplinary research has been limited in practice and at a theoretical level. This has begun to change with several new research initiatives focussed on the Salzkammergut region in Upper Austria. This paper presents data analysis from the international project ‘Beyond Lake Villages’ (funded by FWF-DFG-SNF 2015-2018). The Austrian part of the project focuses on the Lake Altsee-Mondsee region, including both large and small bodies of water, bogs, and newly discovered ‘hinterland’ sites. The aim is to characterize lake-edge and wetland prehistoric settlement sites in the Neolithic with special focus on the 4th millennium BC. The project goals are to (1) establish a highly resolved Holocene sedimentary records on annually laminated lake sediments, dendrochronology, and AMS radiocarbon dating.

---
TH6-11 Abstract 16
Beyond lake villages. Archaeological and palaeoecological research at Lake Burgäschi! Switzerland

Author - Prof. Dr. Hafner, Albert, University of Bern, Bern, Switzerland (Presenting author)
Co-author(s) - Gobet, Etika, Institute of Plant Sciences and Oeschger Centre for Climate Research, Bern, Switzerland
Co-author(s) - Laabs, Julian, Institute of Archaeological Sciences and Oeschger Centre for Climate Research, Bern, Switzerland
Co-author(s) - Rey, Fabian, Institute of Plant Sciences and Oeschger Centre for Climate Research, Bern, Switzerland
Co-author(s) - Wey, Ottmar, Institute of Archaeological Sciences and Oeschger Centre for Climate Research, Bern, Switzerland
Co-author(s) - Timmer, Willy, University of Bern, Bern, Switzerland

Keywords: 4th millennium settlements, palaeoecology, pike-welling archaeology Switzerland

Presentation Preference - Oral

In 2015 started the international research project Beyond lake villages: Studying Neolithic environmental changes and human impact at small lakes in Switzerland, Germany and Austria. (University of Bern in collaboration with Landesverwaltungsämter Baden-Württemberg and University of Vienna, funding: SNF-DFG-FWF). Three archaeological and three palaeoecological teams work together on three small lakes on the Northern side of the Alps. The aim is to compare environmental changes and human impact of Neolithic societies. The Swiss study area is Lake Burgäschi, a small water body in the central part of the Swiss Midlands. Archaeological research started already in 1877 and several major excavation campaigns took place in the 1940ies and 1950ies. Up to now four settlement of the 4th millennium BC areas are known and single finds indicate settlement activities during the 5th and 3rd millennia BC. The presentation gives an overview on former and recent activities in one of the classic find spots of Swiss pike-wellings 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 - Reschreiter, Hans, Naturhistorisches Museum Wien, Vienna, Austria (Presenting author)
Co-author(s) - Kowarik, Kerstin, Naturhistorisches Museum Wien, Vienna, Austria

Keywords: Mime, Organic material

Presentation Preference - Oral

Organic finds fascinate as they convey exceptional insights into prehistoric daily life and work routine. Organic objects make up the bulk (far more than 90%) of material culture in the period from the Stone Age to very recent times (19th cent.). Aside from underwater and wetland sites organic materials such as wood, fur, skin, leather and textiles have also been preserved in considerable numbers in several alpine mines (e.g. Hallstatt, Mitterberg). Those ancient mineral reliefs are fundamentally different from the objects we know from wetland and underwater sites in terms of taphonomy, functionality and above all research history. Those pot handles, lighting tapers, buckets, mining timber, axes and so on are remnants of large scale prehistoric production systems. A particular difficulty in dealing with these objects lies in the uncertainty whether they represent highly specialized mining tools or tools commonly used in the settlements as well. Comparison with the organic finds from wetland and underwater sites is essential in the understanding of the finds from the alpine salt and copper mines. In addition the Alpine finds present important complementary information in the analysis of organic finds from bog, wetlands and water bodies as certain materials that decay under water 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 Pfahlbauten, Attersee, Austria (Presenting author)
Keywords: Austria, Neolithic, pile dwellings

Presentation Preference - Oral

The most recent extensive survey undertaken in Austria and a small but successful study of the prehistoric lakeside settlements took place in the 1970s and 1980s. The inscription on the UNESCO list of World Heritage sites in 2011 provided the crucial impetus to resume the archaeological investigations and the associated protection measures. The Pile Dwellings Curatorship was tasked by the Austrian state authorities with coordinating the work and establishing systems of monitoring the sites. In 2013 a monitoring plan was developed with the aim of maintaining long-term observation and putting in place protection programmes; at the same time, archaeological investigations were mounted at five Austrian world heritage sites on the list of ‘prehistoric pile dwellings’. Now, three years later, a first up-to-date inventory is available, which will allow us to implement concrete protection measures beginning in 2016. Additionally we have got some new data as a result of our research. A new research programme has been started with an underwater excavation in Lake Attersee in 2015.

TH6-11 Abstract 19
Wet worlds in context–The Bronze Age pile dwelling of Must Farm in the East Anglian Fens (UK)

Author - Husman, 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 ‘vannings’ found in Scotland and Ireland, Must Farm consisted of typical Bronze Age roundhouses built on stilts above a former channel of the river Nene. Burnt down at the end of its lifespan this site has been extraordinarily well-preserved. Consequently, Must Farm (dubbed the ‘Pompeii of Britain’), provides an unprecedented snapshot of later Bronze Age life and human-livelihood 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 wetlands settlements. More importantly, nearby dryland settlements areas should also be considered. Only then we can study the origin of pile-dwellings, better understand their inhabitants’ lifeways and their interactions with the environment. This paper will discuss these issues by introducing Must Farm and placing this site in its wider regional, national and international context.

TH6-11 Abstract 20
Sailing the lakes of the Alps. Notes on the prehistoric navigation and boats

Author - Tiboni, Francesco, Università Aix-Marseille 1, Arenzano, Italy (Presenting author)
Keywords: Boats, Lakes, Monoxyle

Presentation Preference - Oral

The aim of this paper is to propose a new framework to deal with the topic of ancient monoxyle canoes and canoes that have been found in great number in different prehistoric sites of the Alpine region, and particularly to deal with those pertaining to pile dwelling sites. Usually considered simple boats, essentially in use for fishing and for short travels on water, these objects have not been studied in the same way around the Alps. Their knowledge is in fact not homogenous and is essentially linked to single experiences and researches, held by singular scholars, often isolated. From wanting to exhaust the topic, the main aim of the proposed framework is in fact to oversimplify the often-overestimated idea of a sort of primitivism of these ancient ships, as well as to propose a new and more complex interpretation of their forms and features.

To do this, the paper first tries to examine why the analysis of these boats appears to be usually conditioned by the anthropological interpretation of the “modern primitive monoxyles” in use in some technologically regressed regions of Africa, Asia or Oceania. After doing this, in the second part, the author considers the relationship between man and water in lacustrine environment
during the prehistorical time, trying to put in evidence how and why prehistoric people could have chosen to use water transport in such a particular environment. Then, moving from a preliminary analysis of the boats in use from Neolithic to Iron Age in the Alpine lakes, essentially based on the data we have from archaeological literature, the author deals with the possibility to link different boat-types to particular needs, related to the activities for which the boats themselves have been conceived in origin.

At last, the paper tries to put in evidence how this particular topic can be of interest not only to have a precise idea of the relationship between boat dwelling sites and waterways in the prehistory of the Alpine region, but in a wider area. Considering naval iconography and naval archaeology of the Mediterranean and the North, the author tries in fact to focus his attention on what we can learn about ancient shipbuilding thanks to the analysis of this basic ancient boat-type.

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)
Co-author(s) - Mirabaud, S., INP, Institut National du Patrimoine, 93300 Aubervilliers, France
Co-author(s) - Roffet-Salque, M., Organic Geochemistry Unit, Biogeochemistry Research Centre, University of Bristol, Bristol, United Kingdom
Co-author(s) - Blasco, T., CNRS-UPMC UnivParis 06, UMR 7093, LO, Plateforme Spectrochimie isotopique, 06250 Villefranche-sur Mer, France
Co-author(s) - Pétrequin, P., MSHE C.N. Ledoux, CNRS & Université de Franche-Comté, 25030 Besançon Cedex, France
Co-author(s) - Pétrequin, A.M., MSHE C.N. Ledoux, CNRS & Université de Franche-Comté, 25030 Besançon Cedex, France
Co-author(s) - Everard, RP., Organic Geochemistry Unit, Biogeochemistry Research Centre, University of Bristol, Bristol, United Kingdom
Co-author(s) - Regart, M., (1), Univ. Sophia Antipolis, CNRS, CEPAM, UMR 7264, 06300 Nice, France

Keywords: Dairy products, Organic residua, Pottery use

Presentation Preference - Oral

Traditionally, pottery use has been discussed through morphological characteristics and mechanical properties of the vessels (Rice 1987) but amorphous organic residues analysis has also greatly contributed to understand exploitation of natural resources during the Neolithic (Everard et al. 2008). Nevertheless these methodologies are rarely combined due to the high fragmentation of pottery and to the impossibility to link ceramic content with specific shape. At the site of Clairvaux XIV (Middle Neolithic, MMB - 36e-37e century BC), the large and diversified corpus of ceramic vessels (377 vessels with restituted profiles) combined to anoxic condition favoring lipids preservation offers a unique opportunity to investigate the use of pottery to better understand lake dwelling Neolithic society (Pétrequin et Pétrequin 2015).

The corpus was first classified based on morphological and morphometric criteria. Chemical analysis of the lipids present in different samples of preserved surface residues were then carried out using an analytical strategy combining chromatographic (HTGC, spectrometric (HTG-CMS), NanoESI MS and MS/MS) - Mirabaud et al. 2007 - and isotopic (IRMS) techniques. The data obtained on 95 pottery conducted to: (i) the identification of a broad diversity of commodities processed in the vessels, mainly from animal origin, (ii) the establishment of clear relationships between content, traces of cooking, shape and volumes of the vessels.

This study highlights some characteristic consumption pattern of the Neolithic people living at Clairvaux XIV in the first half of 4th millennium BC. First, a clear difference is observed between cooking pots and serving vessels. Dairy substances were significantly used in all category of ceramics but small individual vessels seem to be especially dedicated to the consumption or 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 prepared and consumed without using ceramics (grilled, dried etc.). In addition non-food products as beeswax and birch bark tar were also detected in some pottery.

This study presents a first attempt to propose our strategy as an optimum for paleaeoconomic evaluations of large-scale excavations in wetland settlements.

Presentation Preference - Oral

TH6-11 Abstract 23

A new look to late Neolithic plant economy from the site of Parkhaus Opéra (Zürich, Switzerland)

Author - Steiner, Bigna, IPAS (Integrative Prehistoric and Archaeological Science), Basel, Switzerland
Co-author(s) - Antonit, Ferran, IPAS (Integrative Prehistoric and Archaeological Science), Basel, Switzerland
Co-author(s) - Kühn, Marlu, IPAS (Integrative Prehistoric and Archaeological Science), Basel, Switzerland
Co-author(s) - Bleicher, Niels, Centre for Underwater Archaeology and Dendrochronology, Zürich, Switzerland
Co-author(s) - Jocomet, Stefanie, IPAS (Integrative Prehistoric and Archaeological Science), Basel, Switzerland

Keywords: archaeobotany, GIS, sampling strategies

Presentation Preference - Oral

Archaeobotanical research in the Alpine Forol has a long tradition. Abundant quality data have been produced since the seventies of the XIXth century. The Horgen period (ca. 3400 – 2900 cal BC) has been particularly well investigated, especially since the excavation of Arbon Bleiche 3. It was after this project that researchers realized that the representative sampling of lakeshore settlements with paleoaeconomic aims (e.g. characterizing past agriculture and gathering practices, as well as diet) was only possible through the systematically-taken surface samples of large volume (ca. 5 L). 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 sampling strategy was conducted and a new method of analysis was developed for the exploration of time investment possible. These large samples were subsampled before sieving, producing one large-volume (sieved with 8 and 2 mm sieve fractions, for the recovery of large-sized seeds and fruits) and one small-volume sample (sieved with 2 and 0.35 mm sieve fractions, for the recovery of the small-sized grains). Around 250 large-volume samples (ca. 5 L) and ca. 120 small-volume samples (ca. 0.3 L) were investigated for layer 13 and 53 large-volume and 33 small-volume samples for layer 14. This allowed the recovery and identification of over 200‘000 plant remains for layer 13 and around 49‘000 for layer 14. The data were evaluated on the basis of density (remain per litre of sediment) and ubiquity (percentage of samples in which a type of remain is present) as well as through qualitative evaluations of the spatial distribution of the concentration of remains at the site.

The large-scale sampling strategy applied allowed some new observations concerning taphonomy and economic activities taking place at the settlement. The distribution and diversity of plant remains found in our samples seem to show connections to several formation processes and routes of entry that we are trying to disentangle (lake action, animal dung, areas of accumulation of rubbish, etc.). In addition to this, a better evaluation of the role of some of the main crops like barley and pea, as well as the most relevant gathered plants, was possible, thanks to all these methodological improvements. Our aim with this presentation is to propose our strategy as an optimum for paleoaeconomic evaluations of large-scale excavations in wetland settlements.
TH6-11 Abstract 24
Settlement dynamics and mobility in Late Neolithic Southwest Germany

Author - Kaiser, Mirjam, University Freiburg, Freiburg, Germany (Presenting author)
Keywords: Late Neolithic, pile dwellings, settlement system
Presentation Preference - Oral

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 Ammonidion basin that date back from Greek Early Neolithic (~ 6800-5800 BC) to Greek Middle Bronze Age (~2200/2100-1800/1600).

The excavation of these sites yielded an impressive and diverse assemblage (>4000) of bone and antler artifacts which shows that, as in the prehistoric lakeside settlements of Central Europe, the osseous artifacts played an important role in the everyday activities of the inhabitants of the wetland sites of the region. In this short paper, there will be an attempt to present the osseous artifacts of some of these settlements.

TH6-11 Abstract 25
Bronze Age pile dwellings in Northern Italy: chronology, environment and architectural features

Author - Dr. Baiocchi, Marco, Museo Archeologico della Valle Sabbia, Gavardo, Italy
Co-author(s) - Mangani, Claudia, Museo archeologico G. Ramboi, Desenzano del Garda, Italy (Presenting author)
Co-author(s) - Martellini, Niccolita, Dendrodata sas, Verona, Italy
Keywords: Cultural interactions, Northern Italy, pile dwellings
Presentation Preference - Oral

In northern Italy the widest spread of pile-dwellings took place between the 22nd and the 15th century B.C., during Early and Middle Bronze Age and endured till the first phase of Late Bronze Age (13th century). The site itself is dated by dendrochronology around 3970 BC. The objective is to model a settlement system during the Late Neolithic by comparing the features, the corpus of finds and the results of natural scientific analysis of this settlement with other known settlements. The main source of information of this comparison are the known wetland sites. To understand the possibilities and limits of such a model it is necessary to discuss which aspects of life 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.

TH6-11 Abstract 26
Osseous artifacts from the prehistoric lakeside settlements of Amindoeon, Western Macedonia, Greece

Author - PhD Candidate Arabatzis, Christopher, Institute of Archaeological Sciences, University of Bern, Ampelokipi, Thessaloniki, Greece (Presenting author)
Keywords: Greece, osseous technology, Western Macedonia
Presentation Preference - Poster

First archaeological sites on the bottom of Lake Sannikia (13 km2, 148 m a.s.l.), located in NW Russia on the border with Belarusia were uncovered in the 1970s. These lacustrine sites, dated to the 3rd millennium BC, were located along the shores 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 megaliacttic construction of the 3rd millennium BC known so far in Europe. Lots of unique
artifacts were found here, among which a wooden Neolithic ski, wooden zoomorphic figures, bone flutes etc. However, during last 20 years the cultural layer on the bottom of the lake was either destroyed due to lake-level drawdown or buried under modern lake sediments. Another particular feature of this lake is its zero visibility caused by shallow bathymetry and high nutrient loads which makes any common archaeological prospection even more difficult.

In order to find further traces of archaeological constructions and cultural layers a range of remote sensing and geophysical methods, both underwater and on the peat bog shore were applied. For magnetic prospections on the peat bog shore of the lake we applied the highly sensitive total field caesium-magnetometer (+0.01 nT) in a variometer configuration. Combined with a high spatial resolution (sampling rate of 12.5 x 25 cm) the results allow us also to detect the weak magnetic signals of archaeological structures of wooden constructions such as rows of post or parts of post-build houses, fish-traps, but also very clearly the traces of paleochannels and the typical strong magnetic anomalies which could be ascribed to ancient fireplaces or kilns.

Supplementing the archaeological underwater surveys three sites in the littoral fringe have been investigated by dense side scan sonar tracks with varying frequencies (80/200 kHz). The sonar mapping revealed details in lake bottom morphology, which is is recently enveloped by soft sediments as well as the precise distribution of ancient stone and wooden constructions on the sites. These prospections not only allowed us to reconstruct in details paleorelief, precise distribution of ancient stone and wooden constructions on the sites and to define and to locate the places for further excavations but moreover provides us a comprehensive approach to the site.

---

**TH6-11 Abstract 29**

**Planigraphy and design features of the Neolithic from the North region of Lake Baikal**

**Author:** Phd Emelianova, Yuliana, Irkutsk National Research Technical University, Irkutsk, Russian Federation (Presenting author)

**Keywords:** Baikal region, Neolithic, Planigraphy

**Presentation Preference:** Poster

Various functionality of archaeological objects is determined by the characteristics of their layout and design. It is always connected both with practical issues and with the sacred and social views. The ability to follow the example of one of the sections of the Baikal coast features of the organization of different types of archaeological objects of the Early Bronze Age is unique. Nowhere in the Baikal region is not identified neighborhoods in which would be located close to each other burial grounds, settlements, parking and a Bronze Age sanctuary. Materials from the north-west coast of the lake make it possible to model of human exploration of the surrounding area, taking into account both profile and sanctuar elements. There are currently aware of only one archaeological site of the Baikal region - Baikal III, wherein the remains of the Early Bronze Age dwellings found. Located on the northwest coast of the lake. Baikal. The preserved part of the monument includes the sanctuary, contoured shaft and a moat, and surrounding it with the southern and western sides of the remains of dwellings. Usually, there are traces of six dwellings. On the ground surface, they are expressed rounded holes. Studied home to Baikal III, began its existence in the Neolithic period. This is evidenced by the finds at the bottom of pits ceramic impressions mesh braid and radiocarbon dates obtained from the remains of bones and charcoal. With the period of the early Bronze Age associated the second stage of their existence. Saturation pits finds this time indicates that at this time in the life of the settlement was the most active. Dwellings were kind of huts. Their lower part occupied square pit with rounded corners, a depth of 0.35-0.50m, oriented along the line northeast - southwest. The walls of the excavation, vertical, floor, or even a slight decrease to the east wall. Dimensions homes ranged from 6.5H x 5.8 B x 10h m to m. The total area of houses from 50 to 80 square meters m. In the south-western part of the house is fixed entrance, decorated in the form of an inclined ramp in width from 1 to 2m. The eastern wall of the home was a continuation of the entrance. Along it flowed the economic life of the inhabitants. The western part of the home was a seating area. It found significantly fewer discoveries than in the eastern part of the excavation. Location entrance also contributed to the fact that this part of the huts was more isolated. Closer to the center of the home was located hearth, which often obeliskvai stones. Top housing overlapped poles, the remains of which were found along the edge of the pit, in the ancient land surface. Planigraphicheske location artifacts 1st cultural layer in piece of pits dwellings indicates that these depressions in the land that is not used for long-term human habitation in the Iron Age. Findings are not attached to the interior of pits. They are relatively evenly spaced throughout the excavation area.

---

**TH6-12 Abstract 01**

**Ritual continuity and changing monuments in the southern Sperrin Mountains, Northern Ireland**

**Author:** Dr. Brogan, Catriona, Queen’s University Belfast, Belfast, United Kingdom (Presenting author)

**Keywords:** Neolithic/ Bronze Age transition, Northern Ireland, Ritual landscapes

**Presentation Preference:** Oral

This paper argues that there was a surprising degree of spatial stability between Neolithic and Bronze Age ritual landscapes in Northern Ireland despite substantial changes in funerary/ritual practices. Taking the southern Sperrin Mountains as a case-study, it is shown that Bronze Age ritual activity tended to occur within established Neolithic ritual landscapes. The conclusion of this paper discusses some of the possible reasons behind this stability including functional, ritual and political reasons.

The Sperrin Mountains form the largest mountain range in Northern Ireland, stretching across the north-west of the country. Glacial activity during the last ice-age has created a landscape of rolling mountains cut by deep glens. Today the upper slopes of the mountains are largely unhabitied as the spread of blanket peat has pushed settlement down into the foothills, with the often barren and windswept uplands reserved for the seasonal grazing of cattle. It would, however, appear that these mountains were not always so desolate.

During the course of the Irish Neolithic substantial anthropogenic changes occurred; people began farming the land and constructing megalithic tombs in which to bury their dead. These tombs are often regarded as being linked to ideas of ancestor veneration, where the remains of the deceased symbolically tied the community to the land they had invested in. Landscape analysis of the Sperrin region reveals particularly high concentrations of Neolithic burial activity, suggesting that this may have been perceived as a ritual landscape.

The advent of the Bronze Age sees profound cultural changes throughout Ireland and evidence from a recent genetic study has even indicated that there was a significant migration of people into Ireland (Cassidy et al. 2006). Within the funerary/ritual spheres, megalithic burial is 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 Sverri 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)
Co-author(s) - Gauthier, Emilie, UMR 6249 Laboratoire Chrono-Environnement, BESANCON, France

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: landscape, Portable material culture, Viking Age


Author - PhD student Bourguignon, Claire, University Blaise Pascal Clermont-Ferrand II, Dijon, France (Presenting author)
Co-author(s) - Chevassu, Valentin, MSHE Ledoux / Université de Bourgogne-Franche-Comté, France
Co-author(s) - PhD student Chevassu, Valentin, MSHE Ledoux / Université de Bourgogne-Franche-Comté, France
Co-author(s) - Thibert, Matthieu, UMR 6249 Laboratoire Chrono-Environnement, BESANCON, France
Co-author(s) - Bichet, Vincent, UMR 6249 Laboratoire Chrono-Environnement, BESANCON, France
Co-author(s) - Richard, Hervé, UMR 6249 Laboratoire Chrono-Environnement, BESANCON, France
Co-author(s) - Deles, Benjamin, UMR 6249 Laboratoire Chrono-Environnement, BESANCON, France

Keywords: History of land-use, medieval archaeology, palaeoenvironment

Presentation Preference - Oral

This presentation aims to describe the evolution of settlement and landscape in a middle mountain areas located in Eastern France during medieval and modern periods (5th-18th c.). We will focus on the first results gathered about the central part of Jura Mountains. This area is characterized by a landscape of high plateaux and high valleys (between 1200m and 1800m high), on the French/Swiss border.

Numerous high resolution and well dated palaeoenvironmental analyses performed on past deposits and lakes are available in the studied area. Then, ancient archaeological discoveries, recent field and LiDAR surveys enable us to review and map settlement evolution. These information items are completed by a large collection of medieval and modern archives, still underused. A systematic crossing between these different approaches has been done thanks to a database linked to a Geographical Information System. It may be possible then to describe and understand more precisely the evolution of land-use, beyond the usual prejudices about marginality and late land clearing in mountain territories.

Thus, archaeological discoveries and palaeoenvironmental data show an Early Middle Ages settlement, mostly ignored by scarce written sources. Since the 10th century, land-use is differing in the plateaux and in the high valleys; those changes might be linked with the distribution of parishes, monasteries and feudal structures. Differences increase between the 15th and 17th centuries, as some territories begin to specialize in breeding or craft industries. In the same time, Jura had to sustain violent crises linked with plague and military troubles (e.g. Plague in 1348-49, Burgundy Wars = in 1479 = Ten Years War = in 1634-1644). We can estimate the consequences of such events thanks to building archaeology as well as pollen data the decrease of agro-pastoral indicators in the palaeoenvironmental samples.

Comparisons between the several studied micro regions highlight the influence of political structures, trade routes and external investments on natural resource management. During Classical Middle Ages, and even since the Carolingian period, we can distinguish the wide mountain parishes and seigneuries from the fragmented estates of the lower areas, with different land-use and settlement patterns. Then, from 15th century, the border between French and Swiss Jura appears progressively, along with political, religious and economical differentiation. The different evolution of landscape and settlement within the same natural environment is hence witnessing the impact of political, economic and military events on each side of the border.

These first results are meant to be completed by archaeological field operations and precise the chronology of settlement structures. On another side, the crossing of written sources with statistical analyses of palaeoenvironmental data may enable us to estimate more precisely the impact of various historical phenomenon on the evolution of land-use. Modelling this evolution might be then of a great help to understand periods deprived of written documentation.

TH6-12 Abstract 04

Multidisciplinary data-crossing about settlement and land-use in Jura mountains (5th-17th c.)

Author - PhD student Chevassu, Valentin, MSHE Ledoux / Université de Bourgogne-Franche-Comté, BESANCON, France (Presenting author)
Co-author(s) - Gauthier, Emilie, UMR 6249 Laboratoire Chrono-Environnement, BESANCON, France

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.
Can humans change their spots? Site location patterns in Mid-to-Upper Paleolithic Cantabrian Spain

Author: Javier, Oroño, University of the Basque Country, Vitoria-Gasteiz, Spain (Presenting author)

Keywords: Late Middle/Early Upper Paleolithic, Settlement patterns, GIS, Spanish Cantabrian region

Presentation Preference - Oral

Research on the European Middle-to-Upper Paleolithic transition has mainly been devoted to issues of long-standing interest like human anatomy, artifact technology, economic strategies, symbolism or, more recently, genetics. By contrast, other aspects of the archaeological record still require further attention, particularly research on landscape perception and use. As a result, very little is actually known on the decisions and conditions that led Late Middle Paleolithic and Early Upper Paleolithic human groups to settle and move back and forth across the geographical area in this paper, a pilot approach to investigate this issue, we aim to explore how settlement patterns changed or persisted in a quite constrained and archaeologically rich area, the Cantabrian region (northern Spain). To this end, locational analysis has been undertaken on a total sample of 94 sites showing human use in a time-lapse spanning more than twenty millennia (ca. 45 to 22 ky cal. BP) - coincident with the so-called Late Mousterian, Chatelperronian, Aurignacian 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 mixture where divergences in settlement patterns through time can sometimes be evident or not, depending on the variables analyzed, and may reveal different – and not necessarily evolutionary – strategies for the peopling of a changing environment. After all, landscape use has always been about decision-making.

The structuring of the Adriatic littoral landscape between Atria and Altinum during Roman times

Author: Dr. Matteazzi, Michele, Cañada 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 Atria (Adria) is a low plain continually redrawn, until the modern age, by an extremely complex hydrographic system, of which rivers Po, Brenta, Adige and Bovolenta are the main agents; but that also includes a numerous series of canals, drains and ditches that unfit the excess waters to avoid swelling. To all this great mass of water, which has always been a highly destabilizing factor for the plain itself, we must also add the other high morphological variability component of the landscape, i.e. the southern basin of the Venice Lagoon, where the hydrographic system goes (and went) to run out, and that, since ancient times, has offered those harbour areas that were crucial for the economic development of the territory.

If today the relationship between landscape and water looks very tight, we know that was the condition also during Roman times, when classical sources tell us that here was the northernmost part of the great delta of the river Po that (which reached Ravenna, to the South, and Altinum, to the North) and, above all, the zone located to the East of the municipality of Atria where the river itself flowed to the sea with more branches, a wide marshland called Septem Maria (i.e. “the seven seas”). Furthermore, we know that in this stretch of plain the rivers Alithes (Adige), Medusacus (Brenta), Reteno (Bovolenta) and Togisonus (Bovolenta channel) flowed and mingled their waters with Po ones; tappezi with fassio (i.e. “canals”) Cicilia and Pilhezina, two artificial waterways that formed part of an inland waterways route that linked Ravenna and Altinum: the existence of such a route is proved by numerous sources, among them the Itinerarium Antonini.

This fluvial route was also followed by a terrestrial one remembered by Tabula Peutingeriana, which also mentions the main stations which marked its track: this road was a coastal itinerary parallel to the innermost one followed by the Via Popilia, a consular road built in 132 BC as a direct connection between Ariminum (Rimini) and Aquileia linking all the important port centers of the Upper Adriatic coast such as Ravenna, Atria and Altinum.

Therefore, paying attention to all these elements, the paper aims to investigate the complex relationship man-landscape, which was established in the area during the Roman period (ranging from 3rd century BC and 6th century AD). It consists of the landscape and 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 Natiso river, stands as a perfect example of a once really strong and powerful town that fell into nothing after the end of the Roman Empire.

The socio-economic status of the city reaches its peak starting from the Theataric period: as a matter of fact with the Dictalian and Constantinian reformation she received officially the title of capital of the Venetia et Histria region. Moreover, her proximity with the newly Imperial Capital (Mediolanum) put her in a political circuit of primary importance; providing her a role of cultural and administrative complementarity in respect of the capital. Her new role granted her a primary importance spot within the imperial agenda, firstly in relation with the Danubian times patrol but most of all as a bridge-head of northerneastern trade routes. This prosperity echoes in the urbanistic evolution both from the point of view of public and private dwellings.

Two centuries after, all of this was not there anymore and the town itself was reduced to a third of its original size. Moreover the new city wall (at the half of the VI Century AD) excluded not only the forum but also the harbour that was the symbol of its past role.

How did it happen? Clearly the temptation of giving all the blame to the barbaric invasions and mainly to the supposed conquest of the town by Attila (5th AD) is strong, but with this paper I will go beyond these single events trying to track those long-durant factors that lead one of the greatest Italian cities of late antiquity to become little more than a village. Even its own name was recalled in the sources just in relation with its dioceses or as a moment of the unpredictability of fortune. These factors have been both natural (mainly the decrease in the flow rate of the river Natiso) and anthropic (mainly the changes in the power balance of the Roman Empire, the transfer of the capital to Ravenna in 402 AD).

The rivers promised not to deluge the country": the Arno and Serchio lower valleys

Author: Prof. Pasquincelli, Marina, University of Pisa, Pisa, Italy (Presenting author)

Keywords: coastal pragoration, North Etruria, Water management

Presentation Preference - Oral

In North Western Tuscany (ancient Etruria) landscape dynamic transformations, due both to natural and anthropic factors, and phenomena of persistency, resilience and change are studied in a long-term perspective. In this district multidisciplinary researches provide evidence of coastal pragoration and erosion, paleo-environmental changes, water management practices, rural and urban landscapes, manufacturing activities. Significantly, the complex hydrogeological evolution of the Pisa-Lucca territory and the long term human actions aimed at optimizing the rivers regime were already perceived by the ancients, as documented by Strabo after his sources (S.S.25, 2220). In the Roman Late Republican period the critical phases are to be connected with protracted intense rainfalls and with the impact of anthropic activities on the territory (e.g. the Roman colonization in the 2nd and 1st cent. B.C., the upkeep or collapse of the countryside drainage systems, etc.). In a period characterized by sea level raising 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 colonias in the early 2nd cent. B.C. and in the late 1st cent. B.C., in particular with the organization of their territories (petrunculi and land allotments). The continuous and natural transformation of the

Bibliography:


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 Lubuški 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 valleys that pastures in the highlands, but it also played an important strategic role. The most important road in the province, connecting Narona with Solin, 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 conquest, and the removal of armed conflicts between the quickly Romanizing farmers in the valley and the more traditional shepherding population of the highlands.

A non-invasive archaeology 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 building of channels and the draining of stagnant waters to the construction of embankments, dikes, cause di colmata and the building of canals to alleviate flood waters.

TH6-12 Abstract 10
Prosper in Valley, Hide in Mountains:
Dynamics of Settlement in Lubuški (Bosnia and Herzegovina)

Author: Dzidzicki, Tomasz, Institute of Archaeology, University of Warsaw, Warsaw, Warsaw, Poland (Presenting author)

Keywords: Late Antiquity, Roman, settlement patterns

Presentation Preference - Oral

The paper deals with the first step of methodological network studies in this project, which is to map known sites into GIS together with trade routes, landscape features, suggested tribal territories, natural resources, and some remains (e.g. systems of caravanserais, landscapes, patronage, architecture)

We apply the comparative method (using standardised data and a set of ‘middle range’ theories) to analyse similarities and differences. The list of variables we included contains: time (the pace and synchronicity of change in past east areas), space (communication factors in inter-population transmission), environment, with its natural and anthropogenic transformations in time, stylic diversity in manufacturing traditions, organisation of settlement area (at the site and micro-region levels), access to resources, and social hierarchies and relationships. The data are examined using statistical tools, e.g. multidimensional techniques of data exploration, and – in case of stylistic studies – compared with the phylogenetic model. The next stage must cover establishing the nature of identified correlations and identification of potential causal relations.

This way we will explore whether cultural diversity is similar – as proposed by the culture-Historical school, recently supported by many evolutionists – to biodiversity and develops through branching of traditions inherited between generations with only slight modifications (so that we can speak of an ‘essence’ of cultural tradition, typical of certain groups in long cycles of historic processes)? Or perhaps the decisive role played by diffusion – blending of cultural traditions as a result of unique historical events, and the horizontal transmission of patterns within ‘network society’? Or, finally, does the diversity of culture result from tight adaptation to local ecological niche, as adaptationists propose?

TH6-12 Abstract 13
Road caravanserais of the Medieval Middle East:
landscape, architecture and patronage

Author: Ass, prof. Tavarni, Ciroina, Abdullah Gul University, Kayseri, Turkey (Presenting author)

Keywords: caravanserais, landscape, patronage, architecture

Presentation Preference - Oral

In the Islamic world, caravanserais have been faithfully serving travelers, traders and pilgrims for many centuries, sometimes functioning as stopovers until the beginning of the 20th century. The impressive geographical and temporal diffusion of this institution, original to the Islamic world, clearly shows that caravanserais fulfilled a key role in society, in relation both to the physical act of travelling and to the notion of travel as the expression of cultural values. For different reasons tied to religion, knowledge and also trade, travel and travellers have always been important issues for the Islamic civilization but it would be misleading to consider road caravanserais only as way stations for travelers. Road caravanserais, and especially those of the Islamic institution, the centre of a variety of functions that linked together religious, political and cultural motivations. Yet it is striking to observe that until now road caravanserais have been poorly studied from a comprehensive point of view and are consequently till insufficiently understood. For example, although well know elements of several oriental sites, only one of their characteristic features, the relationship of road caravanserais to the landscape they have been built in has not been studied thoroughly.

TH6-12 Abstract 11
Comparing cultural transmission patterns in southern Poland during the Bronze and Early Iron Age

Author: MA Dziegielewski, Karol, Jagiellonian University in Krakow, Krakow, Poland (Presenting author)

Keywords: Bronze and Early Iron Age, cultural diversity, cultural transmission

Presentation Preference - Oral

In our paper we want to show the methodology and preliminary results of the ongoing project addressing the question when, and in what circumstances, the culture of past societies was determined by such factors as vertical (inter-generational) and horizontal (inter-population) transmission of cultural attributes, and when the decisive role was played by the adaptation to local environment. Several well-investigated settlement regions in southern Poland, intensively occupied for a long time and representing various ecological zones and landscapes (Western Malopolska, Lesser Poland, the upper Vislava valley, the Carpathian Foreland, and the West Carpathians), were chosen to test the role of these factors. We apply the comparative method (using standardised data and a set of ‘middle range’ theories) to analyse similarities and differences. The list of variables we included contains: time (the pace and synchronicity of change in past east areas), space (communication factors in inter-population transmission), environment, with its natural and anthropogenic transformations in time, stylic diversity in manufacturing traditions, organisation of settlement area (at the site and micro-region levels), access to resources, and social hierarchies and relationships. The data are examined using statistical tools, e.g. multidimensional techniques of data exploration, and – in case of stylistic studies – compared with the phylogenetic model. The next stage must cover establishing the nature of identified correlations and identification of potential causal relations.

This way we will explore whether cultural diversity is similar – as proposed by the culture-Historical school, recently supported by many evolutionists – to biodiversity and develops through branching of traditions inherited between generations with only slight modifications (so that we can speak of an ‘essence’ of cultural tradition, typical of certain groups in long cycles of historic processes)? Or perhaps the decisive role played by diffusion – blending of cultural traditions as a result of unique historical events, and the horizontal transmission of patterns within ‘network society’? Or, finally, does the diversity of culture result from tight adaptation to local ecological niche, as adaptationists propose?

TH6-12 Abstract 12
Pastoral Nomads’ Use of the Semi-Arid Syrian Landscape c. 1810-1760 BCE: A GIS Projection

Author: PhD Josephson Hesse, Kristina, Uppsala University, Uppsala, Sweden (Presenting author)

Keywords: GIS, MBL Syria-Mesopotamia, Pastoral Nomads

Presentation Preference - Oral

Thousands 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, migration and nomadic lifestyles such as caravan escort and mercenary. Not only are the connections between these groups of people essential, but also their ways of interacting with the surrounding environments.

The paper deals with the first step of methodological network studies in this project, which is to map known sites into GIS together with trade routes, landscape features, suggested tribal territories, natural resources, and some remains (e.g. systems of caravanserais, landscapes, patronage, architecture)
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 caravansaries 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 caravansaries’ construction programs can shed light on how landscape, patronage and power were perceived within different Middle East contexts. In this presentation, in fact, I will compare medieval Anatolia and medieval Syria and I will investigate how the construction of road caravansaries 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 hubs and crossing-points of the Anatolian peninsula. Within that chronological framework, it acted as a cultural, economic and political bridge between East and West of both the classical and the medieval world. For those reasons, taking into consideration the interactions occurred between man (with different needs in different periods) and the landscape (which remained almost the same through time), Cappadocia offers a great variety of ‘food for thought’.

In this paper, I will focus on three different geographical sectors of Cappadocia, each one characterised by its own specific natural features: a) the semi-flat belt between Colonía Archaeal /Aksaray and Cayseri, next to the course of the Kızılırmak river, b) the area comprised between Colonía Archaeal /Aksaray and Tyana/Kemhisar, with the volcanic groups of the Melendiz Dağları, Hasan Dağ and Gölş Dağ, and the fertile plain surrounding them; c) the mountainous area between Tyana/ kémerhisar and the town of Akşehir, at the foot of the Taşçı dağları.

In this context, archaeological and topographical evidences point towards the existence of settlements’ choices and itinerary patterns of long duration. However, when examining the matter at a more local scale, what clearly emerges is that (in certain areas, at least) some changes took place through time. Towns or villages were abandoned and replaced by other ones; stretches of routes were no more maintained and fell into desuas; previously exploited areas were for more favourable regions.

Trying to recognise those changes and understand the different reasons (of cultural, economic, political, military nature) which subverted them will allow to better appreciate the historical evolution of the Cappadocian landscape and the role it played during the course of the centuries.

---

**TH6-12 Abstract 15**

**Archeography 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** - archaeography, longue durée, roman limes, south Romania, Olt valley

**Presentation Preference** - Oral

How to consider the meaning of ‘border’ in archaeography? (beyond the joke about the title of the session) First, it’s useful to consider the different criteria of the limit between 2 territories, based on the thoughts of sociologists and philosophers. Before to be geographical evidences, frontiers and associated road networks are first, an intellectual constructions of societies, second, a mark of the politics, and third a sign for populations. Therefore, this analysis allows to consider the frontier as a geographical 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 Alutanus and Limes Transalutanus. The first one is on the western bank of the Olt river, the second one is on the eastern plateau in the Boian plain. These two limits may represent a chronological distinction, a functional difference, or both. Using in the same time many data from different origins (topography, geology, hydrology, morphology, topography, village and road network, archaeological settlements), we’ll try to explain that none of these proposals is the right one. It’s necessary to consider both Limes as a complex system, with a triple function: to create a virtual space between Roman Empire and foreign country, to put a physical limit in a dominant situation, and to organize trade and circulation behind and along the border.

In this case, this organization is in full adequation with all the contraints. The territory of this sector is very specific, including a wide valley with a quite regular slope in the West and a high cliff in the East, before the plateau. The valley is occupied with wetlands and marshes.

---

**TH6-12 Abstract 16**

**The Impact of Water on Settlement Development in Western Europe**

**Author** - Donnelly, Harriet, The University of Sydney, St Leonards, Australia (Presenting author)

**Keywords** - early medieval, settlement patterns, water systems

**Presentation Preference** - Oral

The establishment or development of any settlement will require a reliable supply of fresh water. The vital nature of this resource creates a significance for water in any discussion of the interaction and relationship between humans and their landscape. During periods of transition, the importance of this relationship, and the effect it has on the development of settlements, can be examined. From the 5th century AD, following the decline of the Roman period in Western Europe, and on into the 12th century AD, the manner in which many of the water systems were used shifted, while other uses remained constant. The movement of various groups into new parts of the continent resulted in changes to the expression of the human relationship to water systems in the urban structures across Western Europe. Places such as Londinium/Lutunec experienced a significant transition from their previous urban layouts, while others, including Cordoba, appear to continue to function within the original Roman boundaries.

This paper seeks to examine the impact that the relationship between the communities that lived in these settlements, and the water systems that they used, had on the urban development of these sites. Does the change or continuity that is displayed through the sites urban development reflect this dynamic relationship? Through examining how water has impacted communities’ decisions regarding their settlements across Europe on a broader scale, wider trends during this period can be identified and understood alongside regional variation to enable a more complex understanding of the nature of the relationships between Early Medieval communities and their landscapes.

---

**TH6-12 Abstract 17**

**Redistributing of Ancient Grave Stones in Antioch on the Orontes according to their Provenance**

**Author** - Güven, Evrim, Buca/Izmir, Turkey (Presenting author)

**Keywords** - Antioch, the cemeteries, grave stones

**Presentation Preference** - Oral

The contours of the city of Antioch on the Orontes are revealed in the ancient writings and the excavations conducted on the initiative of Princeton University throughout the 1930s. The grave stones that remained from the Antiquity can provide us with precious data concerning the urban outlines in ascertaining the information we presently have at hand.

Nonetheless, we must above all be aware that the grave stones are most often fortuitous finds detached from their original place whose provenance is unidentified. In addition, they are usually acquired by institutions or individual collectors via purchase, donation or confiscation. Therefore, none of the researches executed throughout XXth century has offered a veritable comparative approach between the extant knowledge and the concentration of their find spots, although it may have helped us in mapping out the city.

With this objective in mind, we attempted to find the exact provenances of (around 250) grave stones, as much as possible, within the frame of our doctoral research, in the inventory records of museums (Antakya Arkeoloji Müzesi, Istanbul Arkeoloji Müzesi, Museum du Louvre, Princeton University Art Museum, Worcester Art Museum) and of a local private collection (Ouali Cezza Kaskczapo). 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, Audona. University of Latvia, Latvia (Presenting author)
Co-author(s): -

Keywords: Iron production, landscape
Presentation Preference - Poster

Iron production in Latvia has a long history, spanning from prehistory to the Early Modern Period. This poster will focus on the development of iron production in Latvia, particularly in the Latgale region, and how it influenced the landscape. It will examine the temporal and spatial distribution of iron production sites and the impact they had on the landscape.

The earliest known archaeological remains of iron production in Latvia date back to the Iron Age. These sites were scattered around the countryside, and the production of iron was a significant part of the local economy. The Iron Age sites were mostly small-scale operations, with smelting furnaces and workshops.

During the medieval period, iron production expanded significantly. The Crusades and the expansion of the state of Latgale led to an increase in iron production. The Iron Age sites were replaced by larger-scale operations, with larger and more sophisticated furnaces and workshops. The demand for iron increased due to the need for weapons and tools, and the production sites were concentrated in the Latgale region.

In the Early Modern Period, iron production continued to expand. The demand for iron increased due to the need for tools and weapons, and the production sites were concentrated in the Latgale region. The production sites were larger and more sophisticated, with larger furnaces and workshops. The demand for iron increased due to the need for tools and weapons, and the production sites were concentrated in the Latgale region.

The impact of iron production on the landscape was significant. The large-scale operations created a significant impact on the landscape, with large earthworks and complex structures. The production sites were often located near water sources, and the use of water for cooling the furnaces created large water bodies. The production sites also had a significant impact on the environment, with deforestation and the use of water for cooling.

In conclusion, iron production in Latvia had a significant impact on the landscape, with large earthworks and complex structures. The production sites were often located near water sources, and the use of water for cooling the furnaces created large water bodies. The production sites also had a significant impact on the environment, with deforestation and the use of water for cooling.

The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

Author: Dita, Audona. University of Latvia, Latvia (Presenting author)
Co-author(s): -

Keywords: Iron production, landscape
Presentation Preference - Poster

Iron production in Latvia has a long history, spanning from prehistory to the Early Modern Period. This poster will focus on the development of iron production in Latvia, particularly in the Latgale region, and how it influenced the landscape. It will examine the temporal and spatial distribution of iron production sites and the impact they had on the landscape.

The earliest known archaeological remains of iron production in Latvia date back to the Iron Age. These sites were scattered around the countryside, and the production of iron was a significant part of the local economy. The Iron Age sites were mostly small-scale operations, with smelting furnaces and workshops.

During the medieval period, iron production expanded significantly. The Crusades and the expansion of the state of Latgale led to an increase in iron production. The Iron Age sites were replaced by larger-scale operations, with larger and more sophisticated furnaces and workshops. The demand for iron increased due to the need for weapons and tools, and the production sites were concentrated in the Latgale region.

In the Early Modern Period, iron production continued to expand. The demand for iron increased due to the need for tools and weapons, and the production sites were concentrated in the Latgale region. The production sites were larger and more sophisticated, with larger furnaces and workshops. The demand for iron increased due to the need for tools and weapons, and the production sites were concentrated in the Latgale region.

The impact of iron production on the landscape was significant. The large-scale operations created a significant impact on the landscape, with large earthworks and complex structures. The production sites were often located near water sources, and the use of water for cooling the furnaces created large water bodies. The production sites also had a significant impact on the environment, with deforestation and the use of water for cooling.

In conclusion, iron production in Latvia had a significant impact on the landscape, with large earthworks and complex structures. The production sites were often located near water sources, and the use of water for cooling the furnaces created large water bodies. The production sites also had a significant impact on the environment, with deforestation and the use of water for cooling.

The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

Author: Dita, Audona. University of Latvia, Latvia (Presenting author)
Co-author(s): -

Keywords: Iron production, landscape
Presentation Preference - Poster

Iron production in Latvia has a long history, spanning from prehistory to the Early Modern Period. This poster will focus on the development of iron production in Latvia, particularly in the Latgale region, and how it influenced the landscape. It will examine the temporal and spatial distribution of iron production sites and the impact they had on the landscape.

The earliest known archaeological remains of iron production in Latvia date back to the Iron Age. These sites were scattered around the countryside, and the production of iron was a significant part of the local economy. The Iron Age sites were mostly small-scale operations, with smelting furnaces and workshops.

During the medieval period, iron production expanded significantly. The Crusades and the expansion of the state of Latgale led to an increase in iron production. The Iron Age sites were replaced by larger-scale operations, with larger and more sophisticated furnaces and workshops. The demand for iron increased due to the need for weapons and tools, and the production sites were concentrated in the Latgale region.

In the Early Modern Period, iron production continued to expand. The demand for iron increased due to the need for tools and weapons, and the production sites were concentrated in the Latgale region. The production sites were larger and more sophisticated, with larger furnaces and workshops. The demand for iron increased due to the need for tools and weapons, and the production sites were concentrated in the Latgale region.

The impact of iron production on the landscape was significant. The large-scale operations created a significant impact on the landscape, with large earthworks and complex structures. The production sites were often located near water sources, and the use of water for cooling the furnaces created large water bodies. The production sites also had a significant impact on the environment, with deforestation and the use of water for cooling.

In conclusion, iron production in Latvia had a significant impact on the landscape, with large earthworks and complex structures. The production sites were often located near water sources, and the use of water for cooling the furnaces created large water bodies. The production sites also had a significant impact on the environment, with deforestation and the use of water for cooling.

The landscape of iron production – from prehistory to the Early Modern Period in present-day Latvia

Author: Dita, Audona. University of Latvia, Latvia (Presenting author)
Co-author(s): -

Keywords: Iron production, landscape
Presentation Preference - Poster

Iron production in Latvia has a long history, spanning from prehistory to the Early Modern Period. This poster will focus on the development of iron production in Latvia, particularly in the Latgale region, and how it influenced the landscape. It will examine the temporal and spatial distribution of iron production sites and the impact they had on the landscape.

The earliest known archaeological remains of iron production in Latvia date back to the Iron Age. These sites were scattered around the countryside, and the production of iron was a significant part of the local economy. The Iron Age sites were mostly small-scale operations, with smelting furnaces and workshops.

During the medieval period, iron production expanded significantly. The Crusades and the expansion of the state of Latgale led to an increase in iron production. The Iron Age sites were replaced by larger-scale operations, with larger and more sophisticated furnaces and workshops. The demand for iron increased due to the need for weapons and tools, and the production sites were concentrated in the Latgale region.

In the Early Modern Period, iron production continued to expand. The demand for iron increased due to the need for tools and weapons, and the production sites were concentrated in the Latgale region. The production sites were larger and more sophisticated, with larger furnaces and workshops. The demand for iron increased due to the need for tools and weapons, and the production sites were concentrated in the Latgale region.

The impact of iron production on the landscape was significant. The large-scale operations created a significant impact on the landscape, with large earthworks and complex structures. The production sites were often located near water sources, and the use of water for cooling the furnaces created large water bodies. The production sites also had a significant impact on the environment, with deforestation and the use of water for cooling.

In conclusion, iron production in Latvia had a significant impact on the landscape, with large earthworks and complex structures. The production sites were often located near water sources, and the use of water for cooling the furnaces created large water bodies. The production sites also had a significant impact on the environment, with deforestation and the use of water for cooling.
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.

The history of medicine provides the critical hindsight required to fully contextualize the culture of medical treatment and social care in the past. While Egyptian, Indian, Greek and Roman medicine have been extensively studied, this session focuses upon the archaeology of medicine in Northern Europe. Archaeological research has identified an array of plants, surgical instruments, preparations, and formulations of various ingredients, while historical written records have identified alchemical and folk remedies used throughout northern Europe in the past. This session intends to discuss the negotiation of social roles and concepts of identity, culture and agency amongst patients, medical practitioners and other individuals involved with spaces of healing. This session welcomes contributions concerning medical practice, access to medical care, archaeological theory in medicine, healing, palaeopathology, medicinal archaeobotany, surgery, hospitals, and the treatment of disease, impairment and mental illness in northern Europe.
against the disease. Synchronously, people did trust the very same institutions to scotch the plague, not at least in their constant supernatural distance, and that animals derived from ‘outer realms’ (e.g. the wilderness or far-off lands) are more medicinally potent. Indeed, it will draw on the significance of wild and/or exotic animal species and their medicinal role that is likely to have been due to the widely held, cross-cultural belief that geographical distance is equated with intangible and supernatural distance. The manuscript aims to use the mindkin to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both humans and animals with wood tar. Therefore, ONGUENT project is focused on the investigation of this forgotten chapter of the Mediterranean from the Middle Ages to Present. This is particularly the case of tars from conifers (Pinaceae, Cupressaceae, and Taxodiaceae) in the Mediterranean region, where they are still produced and used for these purposes. Biological and chemical researches conducted on conifer are mostly oriented toward the analysis of essential oil, mainly obtained by the process of plants hydro-distillation. However, the main aim was to care both human...
It is well known that many treatments for diseases and injuries existed in the later Medieval period (ca. 1050-1550 CE) in Northern Europe. Written records, surgical instruments and other artefacts for wound treatment, medicinal plants and various materials used to treat illnesses have been widely discussed. However, very little evidence of such treatments is readily observable when we analyse the actual recipients of such procedures. Therefore this presentation aims to produce 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 body, although the majority of diseases would have only affected the soft tissues. The most commonly observed skeletal lesions include dental disease and trauma. Dental disease in the form of caries and periapical lesions increased in the later Medieval period, especially with the wider availability of sugar and finely milled flour that would have promoted dental caries. However, according to medical treatises removal of infected teeth was largely avoided and it must be speculated that the high percentage of teeth lost ante-mortem in medieval individuals can be attributed to natural causes. Fumigation was one form of treatment for ‘tooth worms’ thought to cause dental caries and potentially such treatment could initiate the upper respiratory tract and, if chronic, could lead to maxillary sinusitis. Nevertheless, since infections may have a number of different causes and should therefore not be seen as proof for dental treatment.

More solid evidence for treatment is found in form of surgical interventions such as trepanations and amputations. Trepanations, or opening of the cranial vault has been practiced for millennia and evidence for successfully healed (and unhealed) trepanations is known from almost every continent. Trepanations would have been performed to treat head injuries, epilepsy or other neurological problems. Despite a high survival rate of ‘patients’ in earlier times, the number of skeletons found with trepanations decreases in the later Medieval period in Northern Europe, attesting that other, probably less invasive treatments for cranial trauma and neurological disorders werefavoured. Amputations are rarely seen in human remains and the few known examples from late medieval England and the rest of northern Europe might be due to the low survival rate of affected individuals. Furthermore, unhealed amputations might not be easily observable and they can potentially be mistaken for post-mortem damage. Lastly, fractures, especially of long bones, when healed with little deformities have been viewed as evidence for fracture treatment. However, it has to be acknowledged that fractures of the lower arm and leg bones, when affecting only one bone might naturally heal without angular deviation, even in the absence of treatment.

In conjunction with these examples, further evidence for fracture treatment will be discussed and critically evaluated, but it has to be concluded that without additional contextual evidence human skeletal remains are not an unambiguous source of information if we want to infer medical treatment in the past.

Osteoarchaeological Evidence for 16th century Anatomy

The University of Wittenberg, Germany, founded in 1502, is well known for some of its illustrious faculty members, including important historical figures like Martin Luther and Philipp Melanchthon. Both supported and influenced medical teaching at the University during the 16th century, while no fixed boundaries existed between medical and theological thought at that time. At Wittenberg University a sound understanding of the healthy human body was seen as a prerequisite also for understanding and healing the human soul. Especially Melanchthon readily incorporated up-to-date anatomical knowledge into his writings, for example updating his own work “Liber de anima” with details from Vesalius “De humani corporis fabrica” around the middle of the 16th century.

Recent excavations at Wittenberg and subsequent osteoarchaeological analyses have now recovered and identified human skeletal evidence for medical practice and pre-Vesalian academic teaching of anatomy during the first half of the 16th century. The remains of several individuals buried within the former Franciscan monastery of Wittenberg, which was utilized by the university for a short time before it was converted into a military facility around 1538, show for example evidence of trauma and syphilitic infection and their respective treatment. Furthermore, rare cases of Renaissance anatomical dissection of complete and partial human bodies have been identified at the site, which can be correlated very well with surviving historical information from different sources. The joint analysis of these historical documents in conjunction with the osteo- and funerary archaeological evidence allows significant new insights into the actual practise and teaching of Renaissance anatomy at the University of Wittenberg, the subsequent fate of the anatomised bodies as well as medical treatment of trauma and infectious disease during this time.
fractures, were found in eight individuals, of which five were estimated to be males or possible males and three were females or possible females. Three had died as young adults, three as mature adults, and one as an old adult. Colle's fractures were found in five of these. Of these, five were females and one was male. Two of these were young adults, two mature adults, and two old adults. One mature female was diagnosed with a Clay shoveller's fracture of the 1st and 2nd thoracic vertebra, and one young adult male with a Boher's fracture of the fifth metacarpal. Examples of trauma also include two subluxated shoulders and one case of imposis ossificans on the posterior tibia.

Males had more trauma than females and the prevalence was higher in older individuals, which was also found in most of the previous bioarchaeological studies. The ribs, tibia, and skull were more affected in males, while the radius, ulna, and vertebrae were more commonly involved in females. The radius and ulna were more affected in the individuals that died as old adults. Interestingly in our study trauma was found to be positively correlated with moderate or considerable amounts of dental calculus and osteochondritis dissecans, and the implications of these finding 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 healed perimortem injuries. Barber-surgeons in many of the locations are known from historical sources and in the mid-18th century provincial doctors were employed to treat the injured.

Skeletal remains provide one of the most crucial and direct sources of evidence for the occurrence of violence, work related activities, and ill fortune in the past. While fractures are the most common pathological condition, we still struggle with the most plausible explanations for its cause and presumable outcomes.

Vilnius, the city of diversity both religious and cultural, serves as an interesting subject for studies of everyday life and its peculiarities in medieval period. Thus, 5 different objects representing varying social statuses were selected for investigation of trauma pattern: Cathedral and Liejyklos street (17-18th c.) – elite members of society, church of The Holy Trinity (17-18th c.) – clerics, Mindaugas street 7 street (16-17th c.) – Vilnius lawmen, Mindaugas street (16th c.) – poor.

A total of 109 injured individuals (57.3% of total individual count) were observed among 400 examined males, females, and non-adults. 82 (29.5%) had only one fracture, while 27 (8.8%) suffered more than one injury. Five cases were recorded as perimortal - no healing signs suggested an early death. Males correspond to the universal model which indicates their dependency to a 'higher-risk' group: injured males consisted 75.2% of all injured individuals. The most commonly fractured part of the skeleton was the rib accounting 30.3% of all injured individuals. Female fractures were characterized by injury to the forearm and spine area, while the males were predisposed to diverse fracture locations.

Interesting patterns emerged when compared different sites. While Mindaugas street burial ground considered to consist most of the observed trauma, that was not the case for other burial grounds.

One of the objectives of the research project is to present complete and interdisciplinary analysis of the historical population, its culture and environmental interactions on the basis of the Tormersdorf-Toporów settlement from the late Middle Ages until its destroying during II World War in 1945.

Based on archival data, it was established that at the turn of the XIXth century in former Tormenrsdorf thesocal care home (Broder-undPflegehausZOAR) was functioning. This allows tostate working hypothesis that the majority (even all) ofthe graves found in Tormersdorf-Toporów are likely to be associated with burials of the residentsof this institution.

Social welfare and health status of the Upper Lausitz - a Tormersdorf/Toporów settlement case study

Author - PhD Szczerzowski, Jacek, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland
Co-author(s) - PhD Konecznski, Pawel, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland
Co-author(s) - Prof. Kiełkowska, Barbara, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland
Co-author(s) - PhD Nowakowski, Dariusz, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland
Co-author(s) - PhD Tomaszkiewicz, Agnieszka, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland (Presenting author)
Co-author(s) - MSc Konecznski, Magdalena, University of Wroclaw Institute of Archaeology, Wroclaw, Poland
Keywords: Excavations, Lower Silesia, Paleopathology
Presentation Preference - Oral

Since 2014 the Department of Anthropology at the Wroclaw University of Life and Environmental Sciences has been conducted the research project "Social welfare and natural environment of Upper Lausitz based on the example of research of the settlement micro-region Tormersdorf-Toporów" funded by National Science Centre in Poland.
IN HEAVEN AS IT IS ON EARTH: ARCHAEOLOGICAL TRACES OF MINORITIES AND RADICAL RELIGIOUS IDEAS WITHIN SOCIAL IDENTITIES IN THE MIDDLE AGES

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room SP2
Author: Garcia-Contreras Ruiz, Guillermo, University of Reading, Reading, United Kingdom (Presenting author)
Co-author(s): Tajerizo, Carlos, Universidad del País Vasco, Vitoria, Spain
Keywords: Archaeology of religion, Minorities religious, Social identities
Presentation Preference - Regular session

Understood as a part of social identity of past societies, religion shall be contextualized in a historic and social frame that can explain this phenomenon in terms of complexity. Religion can be seen as part of macro-ideological discourses, such as the Crusades or Jihad, or as part of the 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 archeology to study religion as a social phenomenon in past societies and to shape its importance in different case studies within a long-term view. The session will discuss religion both in its importance as a state institution and as a social form of identification within local communities and minority religions, and also the conflicts derived from the contact of those spheres, as for example when internal transformations from rationalization of some groups within major religions are produced. The first groups were targeted by stigma and discrimination, especially when religious differences are correlated with other instances of social identity, such as ethnicity. The seconds 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 serve to understand the cultural complexity of the Middle Ages and beyond.

Which kind of material record is available for the study of these groups? What are the main differences of minorities and radical versus majorities beyond the cultus? 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 Nimes, will be analyzed by crossing at the same time textual and archaeological sources. These discoveries still live 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-creteil, Paris, France (Presenting author)
Keywords: Archaeology, Ethnicity, Identity
Presentation Preference - Oral

In this paper I deal with the problems derived from adscription of archaeological staff 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-Leon, and the analysis of materials preserved in the Numantia Museum (Soria) used in my PhD dissertation. I will pay special attention to concrete sites such as Miño de Medinaceli and Conqueza. These sites reflect the different powers successively overlapped and the problems concerning the adscription of identities bearing in the complex Middle frontier between 8th-11th centuries.

The settlement of Umayyad’s powers in the north of the Middle Frontier is a process quite well established through written Islamic sources: between the 8th and 9th century different Berbers Images, clients of the Umayyad’s lords were settled in this area, years later, after the abdication of Abd - al Rhamman III (939) as Caliph, this area was rebuit and became the most active frontier with Christianity in al-Andalus between the 10th and 11th century. However, the explicit recognition of these realities raised devastating problems concerning their chronological and religious-identitarian adscription.

In one hand, the settlement of Berbers Images in this area, as well as the Umayyad’s lords raised with the problem of their adscription to a specific material culture. What kind of archeological staff can we use as cultural markers of this specific ethnicity? What interpretation problems present these indicators in order to identify Berber population? Are they fully assimilated with the Umayyad’s elites? Can we demonstrate the islamization’ traces of this population?

After 946, Medinaceli was rebuilt and became the administrative centre of the Middle Mark, while the nearby fortress of Gormaz became the military centre, the starting point for the northern expeditions replacing the Atienza fortress. This area became a sophisticated frontier based entirely in a network of fortress and towers depended on Umayyad power, and the expression of power of the Umayyad Caliphate based on Ibad mentality.

However, the new Muslims’ rulers were not installed over an unhabitaded 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 artifactual 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: Toço, Alice, University of York, York, United Kingdom (Presenting author)
Co-author(s): Dr. Alexander, Michelle, University of York, York, United Kingdom
Keywords: Diet, Isotopes, Medieval Portugal
Presentation Preference - Oral

Diet had an important cultural and symbolic meaning in medieval societies. In particular, the preparation and consumption of 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: Christians, Muslims and Jews co-existed during the medieval period. In multi-faith societies co-existence and rulers’ religious tolerance towards minorities are intricately linked, affecting all aspects of socio-religious life including dietary requirements. This paper addresses debates on socio-religious changes in an understudied area of Portuguese history, applying carbon (13C) and nitrogen (15N) stable isotope analysis to investigate the diets of Islamic and Christian communities in medieval Portugal under shifting religious political control. Stable isotope analysis, which provides direct evidence of the diet of archaeological individuals, has been applied to the skeletal remains of Muslims and Christians from the medieval sites of Beja (9th-12thC AD) and Silves (9th-13thC AD). These sites are notable for the presence of communities of Muslims and Christians that co-existed before and after the Christian conquest. Beja provides the remarkable opportunity to analyse 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.
TH6-14 Abstract 04
Archaeology and religious identities: the example of the Évora Inquisition court (Portugal)

Author: Magalhães, Bruno M., University of Coimbra, Coimbra, Portugal (Presenting author)
Co-author(s): Santos, Ana Luba, University of Coimbra, Coimbra, Portugal
Keywords: Jewish, Minorities, Persecution
Presentation Preference: Oral

The origins of the Inquisition are related to the power that religion had in Medieval times, representing values as engines of collective lives. As a result, the Catholic Church and the Papacy took over, since the 12th century, the leading role in the fight against heresy. The Inquisition had its origin at that time, and its development through the Catholic world led to its official creation in Portugal in 1386, aiming the surveillance of the ‘purity of faith’, the suppression of heresy, and the discipline of religious beliefs and behaviors, essentially related with the Jewish presence in the Portuguese territory. In 2007/2008 an archaeological excavation took place in approximately 12% of the so-called Jail Cleaning Yard, the dump of the Évora Inquisition court. Having as starting point this archaeological excavation, this work aims to discuss several archaeological traces on how the Catholic Church developed mechanisms currently understood as radical to deal with the presence of religious minorities. Twelve adult individuals in articulation (3 males, 9 females) were recovered and a minimum number of 16 were identified from a commingled context. The absence of funerary shifts suggests that the bodies were deposited directly in the dump. Moreover, the variability of the orientation and position of the body and limbs, and the absence of grave goods are not in accordance with the procedures of a Catholic burial. These results are underlined by the fact that the individuals were recovered from a location that was not sacred. Also, the manuscripts from the Évora Inquisition allowed the identification of 87 prisoners who died during the period in which the dump had been in use (somewhere between 1658 and 1634), and showed that at least 11 (12.6%) of them were confirmed discarded in the dump, likely because they were charged of ‘Judaism, heresy and/or apostasy’. The archaeological traces, as well as the anthropological and historical contexts, are in accordance with the characterization of these individuals as unburied dead, that were not judge by the court of the Portuguese Inquisition and reconciled with the Catholic faith before they died. More than a penalty to the body, this was a punishment to the soul of the deceased. Nevertheless, we will never be certain if these individuals were really Jews, once it could happen that people made their accusations because they were afraid of being accused first. Also, the defendant never knew what crime he was accused or even who made the accusation. From this perspective, the archaeological findings have to be interpreted carefully, but also show us the climate of fear created in people’s everyday life. Even so, these individuals show a unique context which can be used in the future to help interpret other burials which do not fit within the usual scope of the Catholic burial rules in Medieval and Modern times.

TH6-14 Abstract 05
Archaeology of the Spanish Civil War: Is new data contributing to a deeper understanding?

Author: Dr. Perez-Juez, Amaia, Boston University, Madrid, Spain (Presenting author)
Co-author(s): Dr. Monín, J., JUDEA, Madrid, Spain
Keywords: archaeology of conflict, Spanish civil war, trenches
Presentation Preference: Oral

Between 1936 and 1939, Spain was bled out in a Civil War, a prelude of what the whole of Europe would go through only months later. After almost 40 years of dictatorship, and the unanimous yearning to reach a peaceful transition into democracy, archaeological research of Civil War sites was all but silenced for almost three years in order to stop Franco’s armies in his advance towards the capital. The site, which was not subject to protection at the beginning of the 21st century, was completely excavated and researched, and the results were fully published and presented to the public in a temporary exhibition. The enormous amount of information that emerged from that excavation surprised everyone. For researchers, it meant more data to add to the documents and recovering material culture; for the general public, it became a way to reconnect to the landscape that had witnessed part of a family chronicle; for politicians, it was another good media story. No one was to remain indifferent to what an excavation from this period could yield.

In the fifteen years that have since passed, many things have changed in Spain regarding the Archaeology of the Civil War. Legislation protects the sites, excavations are conducted in a variety places, mass graves have been unearthed and bodies identified, and objects of all kinds have been recovered and restored. But these accomplishments, far from bringing the population closer to understanding this part of history, have re-opened wounds of the Civil War. The archaeology of recent conflicts is a complex topic. The research becomes intertwined with emotions and fears, and personal stories come to life in a setting of loss and destruction. Why are we not using these new data to overcome differences? Why is the Archaeology of the

Civil War viewed as partisan, biased, and provocative? Our paper will present the evolution of the research of the Spanish Civil War, beginning with our first excavations in 2000 and exploring other projects. It will also serve as a starting point for debating different approaches to archaeological research of recent conflicts, and will briefly compare the situation in Spain to other similar European and American cases.

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 mythology, 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 image 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 con-juncture through philosophy, religion and mythological accumulation. The Mother Goddess wares were evaluated in compliance with the environment which they emerged in rules, principles and style as well as the social structure they addressed to. In describing the human being, we widely observe that he is connected with the mythological legends and holy scripture doctrines. FINDINGS: The role of the semantic integrities in the history of religions and their connections in the holy scriptures, may be needed to be examined.

We think that some critical scientific theories in art, religion and archaeology may have correlation with the idols. By taking the interpretations in the holy scriptures and the mythologies, their theses and antitheses were frequently compared. The fixed most important topic was that the observability of whether the abstract symbolic knowledge which is necessary in knowing human-being, the sociological ideas realized in the life environment by coming to know the nafs. RESULT: We found out that the con-jectures which has been realized in different periods of the History of Humanity are hidden in the inner depth of human. The definition of the Pharaoh, idol (ego), (con was observed to be the abstract, emotional gap which made the life harder in the human structure. The concepts such as the Mother Goddess idols and Pharaoh are the explanations of this empty space as signs and symbols. This determination is that by scrutinizing the existence which bear critical meanings beyond time, there may be an explanation of the life prescription of the history of humanity. It is seen that this prescription is the Noble Quran which constituted an important bridge between the past, which sheds light to the future which have been examined throughout the ages, with the future.

TH6 Archaeology without borders
TH6-15

ARCHAEOLOGY FOR “CONVIVENCIA”, ARCHAEOLOGY AFTER SAINT DENIS

Thursday, 1 September 2016, 9:00-11:00
Faculty of History, Room 211

Author - Cristóbal Bochco, Felipe, Institute of Heritage Sciences (Incipit, CSIC), Santiago De Compostela, Spain (Presenting author)

Co-author(s) - Rossebom, Salah, National Institute for Preventive Archaeological Research, France

Keywords: coexistence, multiculturalism, terrorism

Presentation Preference - Oral

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, partially cooperative partly conflictual, of Jewish, Muslim and Christian communities (http://www.mpwgermanologie.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 01

Saint-Denis, Archaeology, territory and citizenship

Author - Director Rodríguez, Nicolás, Unité d’archéologie de la ville de Saint-Denis, Saint-Denis, France (Presenting author)

Keywords: Archaeology, Citizenship, Territory

Presentation Preference - Oral

Saint-Denis, one of the major sites of French history is also a suburban town, an area that suffered the 13 November attacks, near the “Stade de France”, the symbol of the growth of the town of the 21st century. Here, the new constructions and urban development have erased the shape of the ancient town.

More than 40 years of urban archaeology allowed us to gather data to understand the mechanism of urban growth from the beginning to present day. In order to place the research in a long term framework, in 1982, the municipality created the archaeological Unit.

The Saint-Denis’ excavations have produced a vast mass of archaeological finds. Archaeology is a concrete discipline, perfectly suited for establish direct contact with general public. The outreach program, “Archaeology, territory and citizenship” is in progress since 1998. The goal of this project is to transform archaeological material into tools of understanding the territory.

We are not using monumental remains but finds of daily life, experimental structure and local links, to cross both the know-how of the inhabitants and the invisible towns of Saint-Denis is renewed.

TH6-15 Abstract 02

Devising 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)

Co-author(s) - Adurralde, Albert, University of the Basque Country (UPV/EHU), Vitoria-Gasteiz, Spain

Keywords: Archaeology for “convivencia”

Presentation Preference - Oral

On 23rd October 2015 last, several unidentified persons threw rubbish in the mosque of Llodio (Araba). Several days later, a hooded person threatened and insulted those who were congregated inside. Nobody had ever experienced this kind of incidents before 13th November in a village that is proud to coexist with one of the largest Saharan communities of the Basque Country. This duality, which links emerging xenophobia with consolidated internationalist activities, represents a recurring ideological structure in the Basque Country. The attachment is greater with respect to oppressed peoples. In the Basque Country 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 the inhabitants and the invisible towns of Saint-Denis is renewed.

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 Meeting 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.”

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 Meeting 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 anthropologists, cultural anthropologists, and linguists. The development of the “Campinas Declaration” is used as a case study to explore the dynamics of international, heterogeneous disciplinary communities working together successfully to craft a declaration that could be a model for collaboration in heritage studies. The declaration itself was crafted through intensive but brief collaboration that created an intellectual bond among the participants. Whether the working group can become a sustainable network of functioning partners will depend on the willingness of the sponsoring organizations to allow the network to flourish and establish working procedures that allow for its independent operation. If the focus can remain on a joint understanding that threats to cultural heritage, both tangible and intangible, are real and 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.

TH6-15 Abstract 03

Heritage for convivencia: The Inter-American and Caribbean Cultural Heritage Working Group Meeting

Author - Dr. Majewski, Teresita, 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 Meeting 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 anthropologists, cultural anthropologists, and linguists. The development of the “Campinas Declaration” is used as a case study to explore the dynamics of international, heterogeneous disciplinary communities working together successfully to craft a declaration that could be a model for collaboration in heritage studies. The declaration itself was crafted through intensive but brief collaboration that created an intellectual bond among the participants. Whether the working group can become a sustainable network of functioning partners will depend on the willingness of the sponsoring organizations to allow the network to flourish and establish working procedures that allow for its independent operation. If the focus can remain on a joint understanding that threats to cultural heritage, both tangible and intangible, are real and 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.
TH6-15 Abstract 04
Integrating Archaeology at Vitoria-Gasteiz (Basque Country): terrorism, immigration and peace
Author - Professor Xurxo, Ayn, University of Basque Country, Vitoria-Gasteiz, Spain (Presenting author)
Co-author(s) - Garci Rodriguez, Boria, 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, 1976 is a milestone for the city's population. The arrival of democracy in 1978 led to the conversion of Vitoria-Gasteiz in the capital of the Basque Autonomous Community. This region has a nationalist majority claiming independence for the Basque Country or at least converting Spain into a federal state.

In recent years the city has experienced a second wave of migration, with newcomers from the countries of Eastern Europe, Latin America, North Africa and sub-Saharan Africa. With 250,000 inhabitants, the Basque capital has become today in a multiethnic urban space. As in the 1960s, it is a challenge to integrate these immigrants. A challenge not without its problems. Despite the effort made by the administration (social support) and civil society (platform 'Gora Gasteiz') at urban level they are creating real ghettos. A rejection of initiatives such as the construction of mosques (especially those working-class neighborhoods that had housed the first immigrants of the late twentieth century) has been observed.

At this very reality of globalization, in Vitoria-Gasteiz it is being lived another equally important process. The cessation of armed activity by ETA in 2011 has given way to a period of peace building and collective memory through public policies of memory trying to do justice to the victims of the Franco's regime (1937-1975), of the terrorist group ETA (1954-2011) 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, overcoming the traumas of the past and promote a real integration of immigrants. In our communication we show the work of Heritage socialization that we have developed over the past three years: workshops on Archaeology of the Spanish Civil War, guided tours at working-class neighborhoods of Vitoria-Gasteiz, cultural courses about Archaeology of Francisco at community centers... As a case study we will present the example of the district of Coronación, erected by the dictatorship in the early 50s to accommodate Spanish immigrants. Today Coronación welcomes much of the new Maghreb and sub-Saharan immigrants. The European Union is developing here between 2016-2020 a regeneration project of the neighborhood (Smart City). Our Community Archaeology Project aims to recover the material traces of the past, to present the history of the neighborhood and promote the integration of old and new neighbors across the Urban Heritage.

TH6-15 Abstract 05
Uncovering convivencia from the dark depth of modernity:
toward intercultural rights to heritage
Author - Orlando Barbano, Francesco, Castr Di Lecco, Italy (Presenting author)
Keywords: decolonial theory, indigenous archaeologies, intercultural human rights
Presentation Preference - Oral
In 1492 the last Islamic kingdom in Spain was taken and from the reconquista of Granada began the conquest of the so-called "New World". Until this year convivencia meant that cultural diversity was managed in a way by which each group with its own material and spiritual references was able to define its own path of development. But after the Spanish conquest the perception of cultural diversity was the justification for the exclusion of "others" and the imposition of a dominant culture which was called "Christian" that it was, and somewhere it still is, a synonym for "civilized". In Granada, according to the Italian historian Adriano Prosperi, it was ignited the "seed of intolerance" that would have been the source for the legitimation of European expansion and colonial power throughout the world.

By focusing the attention on the process of modernity as a project for imposing a universal ethic and controlling peoples through their racial classification, Latin American decolonial theorists have shown how euro-western powers have been able to shape a world-system characterized by a logic of exclusion/inclusion in which the "Others" were those whose cultural and epistemic difference seemed to be unsuitable with the right way of social relation, cultural practice or economic development. Heritage conservation emerged within the context of imagining the national communities and formalizing imperial powers in 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 wherewithal of heritage (inasmuch as this is the material and immaterial legacy of the past) for promoting respect among peoples by the mutual acknowledgement of both identity and difference, without avoiding the misunderstandings by virtue of which a real intercultural project is thinkable and enticing.

TH6-15 Abstract 06
The Archaeology of science or what we owe to others
Author - Forestal, Colin, Berkshire Archaeological Society, Wokingham, United Kingdom (Presenting author)
Keywords: Archaeology, Perception, Science
Presentation Preference - Oral
Humanity today generally accepts the science and technology of this modern global society is a result of Western Judeo-Christian philosophy and its gift to the world. Anyone criticizing this apparent hedonistic Shangri-la or even not accepting modern scientific and technological ways without signing up for this perspective as to how life should be lived and the laws it observes are branded outcasts or worse terrorists. This alienates people's and forgets to acknowledge the ingrained conservatism of human nature.

Move to fast to quick people dig their heels in. This paper examines the origins of this science and technology we are so proud of and shows that it is as a result of cooperation and trade of ideas and goods and that a lot of what we consider western science is anything but. It also examines how modern technology can learn from archaeology. Religion is mostly a social code for a population to live by, that is acceptable to that population. Extremism is found when that religion becomes fundamentalist due to it considered emphasis on modern views and techniques that science, education, archaeology and people suffer. Sometimes though is it circumstances that change people's perceptions and a new belief system appears. This paper will also cover these aspects as well.
Experimental Archaeology: Techniques and Technologies

Saturday, 3 September 2016, 14:00-18:30
Faculty of Philosophy, Room A7
Author: - Rinkūta, Virginija, Vilnius University, Vilnius, Lithuania (Presenting author)
Co-author(s): - Tomsons, Artūrs, Latvian University, Riga, Latvia
Keywords: - craft techniques, experimental archaeology, scientific research, education, tourism
Presentation Preference: - Regular session

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: - Rinkūta, Virginija, Vilnius University, Vilnius, Lithuania (Presenting author)
Keywords: - experimental archaeology, Mesolithic, twined clothing
Presentation Preference: - Oral

In 2008–2010, some experiments, testing possibilities of (re)constructing twined clothing, were held. They were based on a find from the middle-late Neolithic settlement of Šventoji 2B (Lithuania), dated back to ~4000–2900 BC. The found two specimens were made of lime bast. They were compared with other extant European twines of similar or close periods. Three pieces of rectangular shape were produced, in order to test some technical and functional questions.

In 2012, it was decided to come back to one of the objects, which had inspired some construction and wearing possibilities of the (re)constructed twined clothing. It was an engraving on the aurochs bone, depicting five anthropomorphic figures, which was found in Ryemarksgård settlement (Denmark) and dated back to ~8000 BC. A set of photos, testing various variations of wearing the three pieces of clothing, was taken. There were tested more than 25 wearing possibilities, both male and female. Then it was tried to find out poses and actual pieces of clothing, which would best match the depicted figures. According to the congruous silhouette and constructional lines of the clothing, it was presumed, that most of the figures were a rectangular long cloth ("a cicak"), 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)
Co-author(s): - PhD Gąsiorowicz, Grzegorz, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland
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 seek the most effective methods for softening bone and antler materials. The subject of the research was both the ease of processing with the use of flint tools and the possibility to shape the material by bending. The aim of the experiments was to identify the method or methods that could have been used by prehistoric communities.

The experiments involved deer antler as well as bovine long bones and ribs. Seven methods most commonly referred to in the literature were subjected to testing, which include soaking in water, lactic acid, oxalic acid, urine, flux oil, lime and boiling in water. Additionally, an unsoftened raw material was subjected to processing as part of a comparative test. In the case of soaking-related methods, the samples were exposed to the substances for a 3-week period with regular monitoring of chemical changes occurring therein. Once every week the rate of softening in the raw materials was tested in order to specify their bending properties and their susceptibility to sawing with the use of flint 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
Research, experimentation and outreach in the early Neolithic site of La Draga (Banyoles-Spain)
Author: - Antoni, Palomo, Universitat Autònoma de Barcelona, Bellaterra, Spain (Presenting author)
Co-author(s): - Buch, Montserrat, Arqueològic, Banyoles, Spain
Co-author(s): - Barceló, Joan Anton, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s): - Piqué, Raquel, Universitat Autònoma de Barcelona, Bellaterra, Spain
Co-author(s): - Terradas, Xavier, Institució Milà i Fontanals, CSIC, Barcelona, Spain
Keywords: - Experimentation, Neolithic, Outreach
Presentation Preference: - Oral

The exceptional preservation of organic material in the early Neolithic site of La Draga (Banyoles, North-east of Iberian Peninsula) has allowed undertake lines of research little developed previously in the region. The research project carried out at the site of La Draga involves experimental archaeology as a methodological tool in order to characterize the technological procedures and for testing the functional hypothesis of tools. Data drawn on these investigations are the foundation stone for the pedagogical project of La Draga, mainly based upon hands experience. These outreach activities are held in the Archaeological Park of the Neolithic Settlement of La Draga, where early farmers dwellings, tools and agricultural plots have been replicated following the results of the archaeological research. In this paper some examples of the interaction between experimental research, digital technologies and outreach activities are presented.

TH6-16 Abstract 04
Prehistoric drilling and bead manufacturing: Experimental approach and cognitive insight
Author: - Dr. Gurvova, 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 tools 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 and a vacuum) of various materials (mainly prepared thin plates) of minerals and rocks, ranging in hardness (on Mohs scale) from 3 (marble, limestone, calcite) to 6.5 (ammonite, nephrite). Biomimetics 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 jeweller.

TH6-16 Abstract 05
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)
Co-author(s): - Opre, Vasile, National History Museum of Romania, Bucharest, Romania
Co-author(s): - Lazăr, Cătălin, National History Museum of Romania, Bucharest, Romania
Keywords: - Eneolithic, Experimental, Pottery
Presentation Preference: - Oral

Aspects regarding the production of Eneolithic pottery based on an experimental archaeological study

TH6-16 Abstract 06

684
685
In this paper, we will present the results of five-year Experimental Archaeology Project on making Eneolithic pottery, based on our research in the Kojadămer–Gumeneța-Karanovo VI tell settlement from Sübata-Malom Rou, south-east Romania. In our work, we have experimented with different hand-making techniques such as building the vessels from one lump of clay, cooling and also molding. Experimenting with the molding technique came as a necessity in our effort to understand the presence of large and shallow plate-like vessels (sometimes larger than 50 cm in diameter), in the potteries assemblages characteristic of these past communities. To understand better the making pots process, we have also tested a series of hypotheses regarding the types of clay, temper, modeling, burnishing, decorating, drying and firing.

Our work is backed up by petrographic and chemical analysis which not only helped us identify the local clay source as the raw material used for the Eneolithic pottery but also gave us a more precise recipe for the mixture of clay and temper.

The data collected over these years now help us to refine observations when studying new assemblages, thus leading to a better understanding of the pottery resulted from the excavation, and the people who made it.

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

**TH6-16 Abstract 06**

**Experimental studies on ceramic provenance from southern Iberia**

**Author** - Dr. Krueger, Michal, Adam Mickiewicz University in Poznan, Poznan, Poland (Presenting author)

**Co-author(s)** - Bartkowiak, Maria, Adam Mickiewicz University in Poznan, Poznan, Poland

**Keywords:** archaeometry, experimental archaeology, pottery

**Presentation Preference - Oral**

The undertaken research addresses a problem of provenance of ceramic assemblages from southern part of Iberian Peninsula in the early Iron Age, particularly differentiation between local and foreign origin of so-called Tartessian pottery through experimental studies. This investigation took into consideration mainly the technological aspects of pottery production and focused on both different applied techniques (hand-made and wheel-made) and the morphological and typological diversity of analysed assemblages. The proposed paper makes an attempt to examine the Tartessian ceramics not from a traditional typological posture seeking the chronological sequences, the dominant approach used in this research is based on archaeological up-to-date methodology, and thereby shed a light of these, still relatively weak recognized aspects in the study of the Iron Age pottery from the southern part of Iberian Peninsula. To achieve this goal a non-invasive X-ray spectrometer has been used in order to determine the chemical differences between ceramics from the local sites of Lower Guadalquivir region. The integral part of this study is an experimental examination of clay paste of sherds, samples of local clay sources and raw material obtained from sites surroundings in order recognize the processes of forming the particular types of vessels and establish the condition and temperature of the firing. All analyzed potsherds and clay samples with various added inclusions were fired in oxidizing atmosphere at several temperatures increasing gradually, starting from 600°C and ending at 1200°C. The physicochemical properties of samples were measured after raising the temperature up every 50°C, their radical changes enable a determination of original firing temperature of prehistoric vessels and possible provenance of clay sources.

**TH6-16 Abstract 07**

The swatch of antiques bronzes

**Author** - PhD student Devogelaere, Jonathan, Aix-Marseille Université, Aix-en-Provence, France (Presenting author)

**Keywords:** antiques bronzes, Colours, Swatch

**Presentation Preference - Oral**

As part of my thesis, entitled "The colours of bronze ceremonial furniture in the Graeco-Roman world, 200 B.C.E. – 200 C.E.: from technical characterization to symbolic values", I have developed an experimental archaeology project to create a swatch of the variegated colours of antiques bronzes, and to restore the original colours of Graeco-Roman bronze furniture. I intend to change the presumed image of ancient bronze as green, lacking rather for evidence of polychromy and a spectrum of copper alloys. This swatch combines the technical processes of the lost wax method and the addition of polychrome bronze surfaces (via patina and inlay).

I intend to use this study as a repository both for my research and for other studies related to bronze production.

Bronze is an alloy of copper and tin, lead may also be added. 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, Corinthian 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 discourting of the surface, often green or brown. Archaeological bronzes also may suffer from overly aggressive restorations which scour the original surfaces or cover them with a layer of paint imitating green corrosion.

The platelet samples of swatch have been analysed to determine their elemental composition and their patina, so as to compare them to the archaeological material. Initial results suggests that the colours of bronze luxury furniture very greatly, and that the spectrum of colours is a product of the composition of bronze alloy and the techniques used in finishing the surface, either polishing or patina application.

**TH6-16 Abstract 08**

A Romano-British glass bracelet: rediscovering a technique

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

**Keywords:** glass bracelet, Roman Britain, technique

**Presentation Preference - Oral**

The paper will discuss the production technique of the seamless Romano-British glass bracelets that has been reconstructed by working with the modern glassmakers and through the close inspection of the British glass bracelet fragments. The production of the rigid annular objects composed of coloured glass in Britain is dated to the mid-1st century AD, starting with the Roman invasion in AD 43. Prior to that, Britain had no history of glass bracelets production, yet the late Iron Age Continental glass bracelets have been attested throughout Britain, albeit on a smaller scale. The close inspection of the fragments by the author had hinted at the possibility that the Roman-period British glass bracelets have been produced in the similar manner as some of the La Tène Continental bracelet types. This has been confirmed by the experiments conducted by the author with the experienced glassmaker, who specialises in making historical beads and pendants. Further experiments shed light on the production and application of the decorative features to bracelets. Most British annulars have either twisted cord decorations or trails with curved terminals. The common theoretical opinion is that cords and trails were marvered flash, e.g. by rolling a hot glass bracelet on a flat surface. This idea has been contested by the experiments, which indicated a simpler way of applying a decoration, further confirmed by the analysis of the fragments. The paper will present these findings and discuss how the experimental archaeology provides us with the clues about the points of interaction between craftsmen of Continental and British origin in the late Iron Age and Roman European Northwest.

---

**TH6-16 Abstract 09**

Teaching Experimental Archaeology at Vilnius University

**Author** - Rimkutė, Virginija, Vilnius University, Vilnius, Lithuania

**Co-author(s)** - Luchtinas, Aleksandras, Vilnius University, Vilnius, Lithuania (Presenting author)

**Keywords:** experimental archaeology, higher education, teaching

**Presentation Preference - Oral**

Vilnius University is the oldest institution of higher education in Lithuania, founded in 1579. Since 1946’s, the teaching of archaeology has started. At present, at the Department of Archaeology of the Faculty of History, the studies of archaeology are organized in three cycles: undergraduate, graduate and post-graduate. Teaching of experimental archaeology for students of archaeology was started more than ten years ago. Students get acquainted with some basics of experimental archaeology during the first year of their undergraduate studies. A full course of experimental archaeology is taught during the first year of archaeology graduate's programme. The course consists of theory of experimental archaeology, discussions and numerous workshops. The workshops are lead by experimental archaeologists and ancient technology experts, in cooperation with craft and experimental archaeology organizations (workshop-gallery “Amatų gilija”, workshop-living museum “Senųjų amatų dūbines”, club for craft reconstruction “Dvaro maitinė”, experimental archaeology club “Pajauta”), as well as some museums (Archaeological and Historical Museum of Knygos klubas and Air Museum of Lithuania at Rumšiškių). The studies period lasts from Stone Age to Late Middle Ages, so thus wide is the range of materials: bone/antler, flint, stone, fibres, plants, textiles, leather, food, non-ferrous metals, ceramics, etc. The course ends up with an experimental archaeology presentation of a particular committed archaeological experiment. As an course, students do vary each year, according to the interests of the students, and usually are related with their MA theses. Usually, this course is chosen by a group of 8-15 students.

As a result, students get both theoretical knowledge and some basic practical skills for using experimental archaeology as a research method in their MA theses or, later, in their doctoral dissertations. Also they use their skills at their work as ancient technologists and educators at living archaeology events and historical museums.
TH6-16 Abstract 10
Six years of experimental traseology at Klaipėda University: accomplishments and future prospects

Author - PhD Rimkus, Tomas, Institute of Baltic region history and archaeology, Klaipėda, Lithuania (Presenting author)
Keywords: Experimental archaeology, Stone Age - Early Bronz Age, Use-wear analysis
Presentation Preference - Oral

In Lithuanian archaeology experimental-traseology method currently is a very rich research area. Very first rudiments of this method originate in the last decade of the 20th century, when with the assistance of use-wear method in foreign laboratories, West and East Lithuania Stone Age sites flint material were analysed. Later, this method was applied for a several Stone and Metal periods flint material functional analysis, which due to a lack of technologies and specialists in Lithuania, was also studied in foreign laboratories (Russia and Poland). Since 2010 experimental-traseology studies were launched at the University of Klaipėda (Lithuania).

Systematically studies in this institution are orientated on Stone and Early Bronze Ages economies research. In this laboratory, more than 100 units of experimental tools data base are in store, which helps to determine authentic archaeological tool functional dependence.

This paper seeks to represent during the period of six years obtained data of experimental-traseology research of Stone and Bronze Ages flint tools, and to summarize executed experimental results. The research includes archaeological data from major Stone Age and Early Bronze Age settlements and cemeteries from West and South Lithuania sites.

TH6-16 Abstract 11
Experimental archaeology in Latvia: some aspects possibilities for the future development

Author - Dr. Tomsons, Artūrs, Latvian National History museum, Riga, Latvia (Presenting author)
Keywords: education, experimental archaeology, reconstruction
Presentation Preference - Oral

The presentation is dedicated to main stages of the development of experimental approach and applying its methodology in the archaeology of Latvia. Presentation examines main stages of development of the scientific thought and various expressions both in reconstructive experiments and interpretations, both in future possibilities of using it in future scientific research as well as a powerful tool in education of archaeology students and tourism.

TH6-16 Abstract 12
Microwave analysis on early medieval combs

Author - Pi, Nathalie, Vrij Universiteit Brussels, Ginglesom, Belgium (Presenting author)
Co-author(s) - Ty, Dries, Vrij Universiteit Brussel, Brussels, Belgium
Keywords: bone antler, comb, microwear
Presentation Preference - Oral

The typological study of bone or antler combs can give useful information in their chronological and regional diversity. Macroscopic research and chemical analyses on the other hand help us to identify aspects such as the origin of the raw material, the native aspect of the comb as well as their trade value. The possible use of different tools in early medieval ages is well documented through literature. However, much less attention went so far to questions as what tools and techniques were applied on individual combs as well as questions about their use.

Through microwear research, an attempt is made to reconstruct the production of the comb, as well as its possible life biography. This microwear method was originally, in 1933 by Semenov, applied on lithic objects, but later it was also used on other materials, such as bone and antler. However, the application of early medieval tools on antler with the aim of making combs was not conducted yet.

The method contains three stages. First, starting from a functional hypothesis, an experimental program is established. In this stage combs are processed respecting both the type of raw materials and technical transformation sequences. Secondly, usage traces, developed on the experimental samples and archaeological samples are recorded with low and high power magnification. Finally, the traces on the experimental and archaeological objects are compared. The interpretation of the production techniques in chronologically and regional different contexts can so confirm or refute typological subdivisions. The maintenance of local techniques can be explored, distinct ruptures in used techniques may be associated to other context-based roles, as social, economic and ideological meaning of a material.

The method will be developed to ‘read’ and detect these production techniques and use wear markers of the combs. The aim is to develop a technique that, combined with typological, scientific and context-based research, can investigate in how far these combs reflect aspects of identity.
Keywords: experimental work, Middle Neolithic, single-chambered kiln

Presentation Preference - Poster

Among the wide variety of decoration techniques discovered at the Alba Iulia-Lumea Noua site (Transylvania, Romania), a specific painted decoration is in the present state of research the only technique that can be definitely attributed to the small Middle Neolithic communities called Lumea Noua cultural group. Being the only material evidence that could lead to the configuration of this cultural aspect for the moment, various archaeometric analysis were made on a large number of samples, in order to extract all the informations regarding the technology that has been used to produce such painted decorations. Based on the material analysis, this paper represent an experimental foray into the manufacturing and firing of painted pottery, that we know so little about, in the Transylvanian Middle Neolithic.

The starting point was a detailed analysis of typical installation discovered in the painted pottery cultural areas that have evolved in the Transylvanian territory. 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 17
Expense vs. Effect: An analysis of selected variables that affect the production of cost surfaces

Author - Caswell, Edward, Durham University, Durham, United Kingdom (Presenting author)
Keywords: Cost Surface, GIS, Site Catchment analysis
Presentation Preference - Poster

Cost Surfaces Analysis has become a common, if sometimes controversial, tool within archaeological study. Today, there are numerous GIS packages that allow the creation of cost surfaces and least cost paths at the “push of a button” (ArcGIS, 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, 36; 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 (Giel et al 2008, Magyari-Sága et al, 2012, Herzog 2014).

This poster will depict results of analyses that build 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.

TH6-16 Abstract 18
New experimental works conducted at the Institute of Archaeology NCU (Poland)

Author - MA Kuriga, Justyna, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland (Presenting author)
Co-author(s) - Osipowicz, Grzegorz PhD, Institute of Archaeology, Nicolaus Copernicus University, Toruń, Poland
Keywords: experimental archaeology, Stone Age, tools
Presentation Preference - Poster

This presentation aims to introduce selected experimental works that have been recently executed at the Institute of Archaeology, Nicolaus Copernicus University in Toruń. At our institute, experimental archaeology has a long nearly 50-year tradition. However, for the last ca. 18 years, most works of this sort have been conducted by members of the student Society for Experimental Prehistoric Archaeology (SEPA).

Among the studies conducted over the last years several projects deserve particular attention. Above all, it is worth to note the new experiments related to the non-ceramic tar production method developed by members of the SEPA. Moreover, experiments with the use of a replica of a Neolithic drill for stone have also continued, aiming to provide an interpretation of the methods for drilling holes in areas made of this raw material. At present, works have been focused on the possibility to employ wooden drill bits. Other project was dedicated to substances that could have been used in the prehistoric times as adhesives. Here, analysis involved binders, such as, tar, pine resin or hoof glue. Experiments with bone or antler softening techniques are also conducted. Within the frame of a project that is currently executed methods with the use of water, lactic acid, oxalic acid, urine, fish oil and lye are examined. What is more, two large projects related to experimental construction of a Mesolithic hut and a granite type shallow pit house have been completed recently. Projects planned for the future involve, i.e., a series of experiments regarding wood processing with the use of burning as well as aztec made of stone and horn. We hope, that these experiments will prove an excellent opportunity to make a replica of a prehistoric dugout boat.

Archaeology without borders

COMMITTEE ON PROFESSIONAL ASSOCIATIONS

Friday, 2 September 2016, 14:00-16:00
Faculty of Philology, Room K. Donelaičio

Author: Dr. James Bonsall, Institute of Archaeologists of Ireland, Dublin, Ireland (Presenting author)
Co-author(s): Wait, Gerald, Nexus Heritage, United Kingdom

The Committee on Professional Associations meets annually during the EAA Conference. It will reflect on the developments in the profession throughout the year. Members will present on the situation in their countries and organisations. The Committee sees a great potential for Professional Organizations to improve the place and recognition of archaeologists in society by providing a platform for professional conduct and operations in the different countries and Europe as a whole. Furthermore it seeks to provide a role for these organizations to take on an advocacy role to enlarge the awareness of the values that are inherently connected and make cultural heritage. It aims to work in close cooperation with the board of EAA and therefore to further the aims of this organisation. During the committee meeting in Glasgow it looked for possibilities to stimulate the growth of Professional Agencies within European Archaeology. This exchange of ideas and experiences will be continued during this meeting.

TH6-17 Abstract 01
The Institute of Archaeologists of Ireland:
An update on our Activities

Author: Dr. James Bonsall, 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

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 substantial setbacks during the recent economic recession. The economic slump began to impact on the development sector, archaeologists were amongst the first in the chain of pre-development workers to feel the downturn, with loss of projects, employment and wage decreases. Since 2008, the IAI has consistently tried to maintain professional standards amongst our workforce by holding regular Continuous Professional Development (CPD) events which reflects our core principles. The Institute maintains that a vibrant and sustainable archaeological profession actively contributes to the protection of our rich archaeological resource, which in turn contributes to the social and economic well-being of the entire community, driving tourism, social cohesion and local pride. To achieve our aim and vision, we are committed to a range of long-term measures, one of which includes the facilitation of CPD for our members and for non-members. CPD activity is monitored annually by the IAI via an easy-to-use CPD Record.

Over the last year the IAI has:
- Produced and funded our regular annual Journal of Irish Archaeology and bi-annual newsletters
- Carried out a wide-reaching membership consultation on the direction of the Institute as the profession seeks to recover from recession impact
- Initiated an internal strategic three-year plan for the Institute
- Supported and been a key partner in the all-island Archaeology 2025 strategy review of the archaeology sector
- Represented our members views to government and public agencies
- In addition to our own Annual Conferences, the IAI held our 3rd annual Archaeofest heritage outreach event for the public in the centre of Dublin, which celebrated the work of archaeologists across Ireland and Northern Ireland
- Hosted and organised a variety of CPD events

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

The archaeological profession in Ireland suffered a substantial setback during the recent economic recession. As the economic slump began to impact on the development sector, archaeologists were amongst the first in the chain of pre-development workers to feel the downturn, with loss of projects, employment and wage decreases. Since 2008, the IAI has consistently tried to maintain professional standards amongst our workforce by holding regular Continuous Professional Development (CPD) events which reflects our core principles. The Institute maintains that a vibrant and sustainable archaeological profession actively contributes to the protection of our rich archaeological resource, which in turn contributes to the social and economic well-being of the entire community, driving tourism, social cohesion and local pride. To achieve our aim and vision, we are committed to a range of long-term measures, one of which includes the facilitation of CPD for our members and for non-members. CPD activity is monitored annually by the IAI via an easy-to-use CPD Record.

Over the last year the IAI has:
- Produced and funded our regular annual Journal of Irish Archaeology and bi-annual newsletters
- Carried out a wide-reaching membership consultation on the direction of the Institute as the profession seeks to recover from recession impact
- Initiated an internal strategic three-year plan for the Institute
- Supported and been a key partner in the all-island Archaeology 2025 strategy review of the archaeology sector
- Represented our members views to government and public agencies
- In addition to our own Annual Conferences, the IAI held our 3rd annual Archaeofest heritage outreach event for the public in the centre of Dublin, which celebrated the work of archaeologists across Ireland and Northern Ireland
- Hosted and organised a variety of CPD events

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

The Committee on Professional Associations meets annually during the EAA Conference. It will reflect on the developments in the profession throughout the year. Members will present on the situation in their countries and organisations. The Committee sees a great potential for Professional Organizations to improve the place and recognition of archaeologists in society by providing a platform for professional conduct and operations in the different countries and Europe as a whole. Furthermore it seeks to provide a role for these organizations to take on an advocacy role to enlarge the awareness of the values that are inherently connected and make cultural heritage. It aims to work in close cooperation with the board of EAA and therefore to further the aims of this organisation. During the committee meeting in Glasgow it looked for possibilities to stimulate the growth of Professional Agencies within European Archaeology. This exchange of ideas and experiences will be continued during this meeting.

Since the EAA meeting in Glasgow in 2015, the Chartered Institute for Archaeologists has been in discussion with other organisations for archaeologists in Europe and beyond, and other organisations that have identified a need for a professional association for archaeology in their country. This paper will report on some of the models for cooperation, collaboration or formal partnership under consideration, and will explore both the opportunities and difficulties of professionalising across borders. Subject to the meeting organisers’ timetable, CIfA hopes to be able to invite participants in this session to an informal reception at which stronger partnerships can be made.

TH6-17 Abstract 02
Professional archaeology without borders

Author: Peter, Hinton, Chartered Institute of Archaeologists, Reading, United Kingdom (Presenting author)
Co-author(s): Wait, Gerry, Chartered Institute of Archaeologists, Reading, United Kingdom

Keywords: Association, CIfA, Professional

Presentation Preference: Oral

Archaeology should be without borders, and professional archaeology must be without borders. Professionalism depends on an individual’s commitment and accountability to an ethical code, and that involves more than just complying with relevant national legislation. The professional is therefore an international phenomenon. In many disciplines, professional institutes have members in many countries - and professional bodies are either multinational or work in strategic partnerships across borders.

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.

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 other 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.
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 builds 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 and define 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 European projection in this challenging time.

Because of the immediacy of the decision to hold this Round Table, we are still organizing its format and speakers. However, we want to stress that everyone is welcome and we hope that members will contribute actively to the discussion. The EAA must be flexible but prompt to address this situation and its specific requirements, and this also means we must be practical. We do not see that all societies are composed of individuals and what they create, it is a time to bring to mind that inclusivity, solidarity and friendship builds understanding and trust. Trust encourages integration and unity of purpose.

The distribution of Spondylus gaederopus, a shell from the Mediterranean Sea, is one of the earliest examples for long distance exchange in Europe and is associated with the process of Neolithisation during the late 6th Millennium BC. Artefacts made of Spondylus can be found throughout Europe, from Greece to Central Germany and from the Ukraine to the Parisian Basin. Although the shell has been in the focus of prehistoric archaeology for nearly 130 years, there is still an ongoing debate about the sources, meanings and modes of exchange. The distribution is often mentioned as a prestige good or gift exchange par excellence, but we have to be aware of a premature categorisation. Not only Polanyi’s trichotomy of reciprocity, redistribution and market exchange can be applied to this case study, but also alternative models from economics, anthropology or sociology need to be taken into account. In this case study, modern economic theories shall be applied to Spondylus exchange during the second half of the 6th Millennium BC and combined with statistical methods.

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. In this presentation we report the re-evaluation of our current state of knowledge regarding the beginnings of agriculture in Lithuania. In our opinion, pollen data should be interpreted with caution while interpreting the beginnings of agriculture in the east Baltics. As the most reliable indicator of agriculture must be macro botanical remains of cultural plants and their direct dating using AMS, we present the newest dating results of cereal grains from the Neolithic Lithuanian settlements. The dating results gives a new perspectives on the chronology of the earliest agriculture in Lithuania pointing toward re-evaluation the chronologies and the geographical origins of the early farming in the northern regions of the eastern Europe.

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. In this presentation we report the re-evaluation of our current state of knowledge regarding the beginnings of agriculture in Lithuania. In our opinion, pollen data should be interpreted with caution while interpreting the beginnings of agriculture in the east Baltics. As the most reliable indicator of agriculture must be macro botanical remains of cultural plants and their direct dating using AMS, we present the newest dating results of cereal grains from the Neolithic Lithuanian settlements. The dating results gives a new perspectives on the chronology of the earliest agriculture in Lithuania pointing toward re-evaluation the chronologies and the geographical origins of the early farming in the northern regions of the eastern Europe.

Keywords: Prehistoric archaeology, AMS, farming, Neolithic
Presentation Preference - Oral
Any scientific study requires data from outside the researcher’s precise field of work. Archaeology amongst the scientific disciplines most frequently calling upon a multitude of other disciplines, both scientific ones and crafts. In this way, zoology has enabled archaeology to consider skeletal remains through a different light in archaeozoology; botany has enabled the use of plants and pollen in analyses; and experimental testing has improved through contact with various craftpeople. The same interdisciplinary has been applied to images with the iconological approach. This has created an approach involving identification using biological, geographical and chronological criteria, integration of dimensions such as ethology (animal behavior) into image comprehension, and classical and logical description.

This presentation shows how iconology can be useful to archaeology through examples covering:
- Carnivore farming techniques in pre-harmonic times in Egypt from the 6th millennium BCE and outsize farming in the Middle-East during the 1st millennium BCE.
- Technicians’ (farmers’) movement between the Middle-East and Egypt during the 5th millennium BCE.

The use of animals by political and religious powers and communities of craftpeople influence during the Bronze Age using feline and bovine analysis.

GS Abstract 05
Mosaics of Ulpihana
Author - Assoc. Prof. Dr. Gökdekaya, Haluk, Mimar Sinan Fine Arts University Istanbul, Istanbul, Turkey (Presenting author)
Keywords: Mosaics, Roman
Presentation Preference - Oral

Archaeological excavations of Ulpihana begun in 1953 and continued with intervals in the following decades. During these excavations, trapezoidal city walls and gates on it; cemeteries in North and West; urban villas and simple houses; workshops; military installation outside the city; three Early Christian churches and a baptistery were discovered. During early years of excavations, mosaics were discovered at two different locations. At the church on the Northern cemetery and a Roman villa. The latter is believed to be a church by some scholars. In 2012 excavations under my direction brought to light a Chalcolithic period and the Early Bronze Age in areas of Egypt and southern Levant. Importance of crucial natural factors which determined evolution of mentioned church as well as particular stages of production which depended on them will be presented.

GS Abstract 06
Calculated Harmony
Author - Richter, Éva, Budapest, Hungary (Presenting author)
Keywords: Calculated harmony, evolution system, pattern family, pattern formation, mathematical thinking
Presentation Preference - Oral

Evolution system of a geometrical pattern group which includes the earliest motifs and symbols of the cultural history. In the end of the Upper Paleolithic a basic geometrical pattern-family was born. It can be originated back to the plating basketry technique and has been surviving up to the present. The earliest motifs and religious symbols, such as chevron, checker board, rhombus and the forms based on meander hook (meander and swastika) belong to this pattern-group. Each can be found in the European Neolithic cultures in different proportions and is presented in varied style. The extensive spread of this pattern-family due to the geometrical rules of plating technology, and the cognitive processes of human brain. The both together resulted as the development of the same patterns in different cultures regardless of their location and their historical ages. The rules of this technology are based on the laws of symmetry. The development of these patterns can be demonstrated within an evolution system, in which the particular patterns were born from a single basic structure step by step by little structural changes. In this universal pattern-family geometric form creation is based on counting, so the manifestation of mathematical thinking can be undoubtedly observed.

GS Abstract 07
Celtic cart graves from Brežice
Author - Murko, Miha, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia (Presenting author)
Co-author(s) - Balinc, J., Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia
Co-author(s) - Černe, Mija, Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana, Slovenia
Keywords: Brežice, southern Slovenia, Celtic cart, late Iron Age cemetery
Presentation Preference - Poster

In the vicinity of city Brežice (southern Slovenia) Centre for the Protection of Cultural Heritage of Slovenia, Centre for Preventive Archaeology is carrying out a large-scale archaeological projects new hydropower plant is being built on the Sava River. A number of archaeological sites are under threat of being destroyed by different infrastructural building works and by flooding of huge areas in order to make the accumulation lake. Archaeological research of the area, started in 2008, is still not finished. During the last third of 2014 and the first half of 2015, a part of late Iron Age cemetery had been excavated. Archaeological excavations took place in the area of a previously known archaeological site of Brežice - Sejmišče (Fairgrounds). The site is well known in Slovenia and is renowned for its wealthy grave inventory, especially weapons and parts of Celtic uniaxial cart that were found in the graves. Investigations of the archaeological site began in 1948 when during building works for a new veterinary station some parts of weapons and late Iron Age pottery were found. Later more graves were identified during various infrastructural ground works. In 1981 first methodological archaeological investigations of the site began under the leadership of Mijat Guštin (first archaeologist in Posavski museum in Brežice). During 1982 and his team excavated 58 graves. In 1997, another 10 graves were excavated west of the veterinary station. Until 2014/2015 excavation all together 73 graves were identified in cemetery.

Archaeological excavations in 2014/2015 identified 37 new graves. All 37 of them were cremation graves (the same as 73 previously excavated). Only 9 graves were preserved intact, majority of them were partly or totally destroyed by modern interventions. 17 graves were just partly disturbed as all the grave goods were found in situ and others were preserved in fragmented. Graves were simple burial pits, without constructions made from stone or wood. Burial pits contained different grave goods, such as: ceramic vessels, iron weapons, fibulae, glass beads, rings etc. Grave 36 contained parts of cart represented as crushed (during burial ritual) iron wheel alloys. 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.
<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maldonado, Adri</td>
<td></td>
<td>TH1-12, TH2-14</td>
</tr>
<tr>
<td>Makarova, Ekaterina</td>
<td></td>
<td>TH1-08, TH1-10, TH5-06</td>
</tr>
<tr>
<td>TH5-11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Madeira, Joaquim</td>
<td></td>
<td>TH5-11</td>
</tr>
<tr>
<td>MacGregor, Gavin</td>
<td></td>
<td>TH2-11, TH3-13</td>
</tr>
<tr>
<td>MacDonagh, Michael</td>
<td></td>
<td>TH6-17</td>
</tr>
<tr>
<td>Macāne, Aija</td>
<td></td>
<td>TH4-06</td>
</tr>
<tr>
<td>Lyne, Ed</td>
<td></td>
<td>TH3-09</td>
</tr>
<tr>
<td>Lymperaki, Maria</td>
<td></td>
<td>TH5-06, TH5-10</td>
</tr>
<tr>
<td>Lyashkevich, Elona</td>
<td></td>
<td>TH2-17, TH4-07, TH5-06</td>
</tr>
<tr>
<td>Luebke, Harald</td>
<td></td>
<td>TH2-10</td>
</tr>
<tr>
<td>Manolakakis, Laurence</td>
<td></td>
<td>TH1-16, TH1-30</td>
</tr>
<tr>
<td>Mannering, Ulla</td>
<td></td>
<td>TH6-01</td>
</tr>
<tr>
<td>Mangado, Xavier</td>
<td></td>
<td>TH4-11, TH4-12</td>
</tr>
<tr>
<td>Malpica Cuello, Antonio</td>
<td></td>
<td>TH3-14</td>
</tr>
<tr>
<td>Malone, Caroline</td>
<td></td>
<td>TH6-11</td>
</tr>
<tr>
<td>Malmström, Helena</td>
<td></td>
<td>TH1-19, TH4-11</td>
</tr>
<tr>
<td>Manttari, Irmeli</td>
<td></td>
<td>TH1-26</td>
</tr>
<tr>
<td>Mas, Bruno M.</td>
<td></td>
<td>TH6-12, TH6-13</td>
</tr>
<tr>
<td>Maraszek, Regine</td>
<td></td>
<td>TH1-07</td>
</tr>
<tr>
<td>Marciniak-Ciezde, Agnieszka</td>
<td></td>
<td>TH1-35</td>
</tr>
</tbody>
</table>