INTERNATIONAL OPEN WORKSHOP
Socio-Environmental Dynamics over the Last 15,000 Years: The Creation of Landscapes VI

Kiel University, March 11 – 16, 2019

PROGRAMME & ABSTRACTS

ROOTS – Social, Environmental, and Cultural Connectivity in Past Societies

GRADUATE SCHOOL AT KIEL UNIVERSITY
human development in landscapes

CRC 1266
Scales of Transformation
INTERNATIONAL OPEN WORKSHOP
Socio-Environmental Dynamics over the Last 15,000 Years: The Creation of Landscapes VI
Kiel University, March 11 – 16, 2019

PROGRAMME AND ABSTRACTS

Title: Excavation of the Linear Pottery settlement at Vráble, Slovakia (Photo: N. Müller-Scheeßel)
Photo left: pixabay
Photo next page: “Freya”, pixabay
A warm welcome to Kiel!

In its sixth edition, the International Open Workshop “Socio-Environmental Dynamics over the Last 15,000 Years: The Creation of Landscapes VI” has attracted more than 330 active participants who will present their talks or posters. We are particularly delighted about the engagement that PhD students have shown in the workshop: They will not only present their research projects, but also chair and organize entire sessions. The same applies to the post-doctoral fellows, principal investigators and international partners of our good old Graduate School (GS) “Human Development in Landscapes”, of the new Cluster of Excellence “ROOTS – Social, environmental and cultural connectivity in past societies”, and of the Collaborative Research Centre “Scales of Transformation: Human-environmental Interaction in prehistoric and archaic societies” (CRC 1266).

The workshop takes place against a background, where the German research landscape is experiencing some changes. In the case of Kiel, the successful application for the ROOTS Cluster of Excellence offers new possibilities to focus our research on past connectivity in respect to aspects, which are also relevant for our current societies: socio-environmental hazards; dietary intakes; innovation, cognition and technology; urban agency and perception; social inequalities; conflict and conciliation. The Cluster of Excellence has just started on the 1st of January 2019 and we are in the creative process to ‘construct’ the new research environment within the Johanna Mestorf Academy. Within ROOTS, the Young Academy as a successor of the former Graduate School “Human Development in Landscape” will play the important role to stimulate research in young new fields of interest and to continue our commitment for young researchers.

The workshop is co-organized by the CRC 1266 that takes the long-term perspective, from 15,000 BCE to 1 BCE, to investigate processes of transformation in a crucial period of human history, from late Pleistocene hunter-gatherers to early state societies. Funded by the German Research Foundation, the CRC combines research of around 60 scientists from eight institutions and the Johanna Mestorf Academy. Within ROOTS, the Young Academy as a successor of the former Graduate School “Human Development in Landscape” will play an important role to stimulate research in young new fields of interest and to continue our commitment for young researchers.

We would like to thank Jennifer Schüle, Katharina Fuchs and Carsten Reckweg as well as the office teams and student assistants for their commitment and support in realizing this workshop!

We wish you an inspiring, fruitful workshop.

Wiebke Kirleis
CRC 1266 “Scales of Transformation: Human-environmental interaction in prehistoric and archaic societies”

Johannes Müller
Excellence Cluster “ROOTS – Social, environmental and cultural connectivity in past societies” / CRC 1266

Mara Weinelt
Excellence Cluster “ROOTS – Young Academy/GS “Human Development in Landscapes”
Practical information

WORKSHOP VENUES
Central venue
Leibnizstr. 1, 24118 Kiel

Icebreaker
Geological Museum
Ludewig-Meyn-Straße 12

Conference Dinner
Paddle Steamer “Freya”
Bahnhofskai (near main station)

Excursion meeting point
Leibnizstr. 1, 24118 Kiel

GENERAL INFORMATION
Helpdesk
Leibnizstr. 1, Room 104
Opening hours: 8:00 til 18:00

Wlan
Please ask at the registration desk

Childcare
Leibnizstr. 3, Room 123

Local transport
Taxi: +49 431 77070
Public transport: www.kvg-kiel.de
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Central Keynotes
MONDAY, TUESDAY & WEDNESDAY, Lecture hall

**MON**
18:00 HDR Laure Salanova, directeur de recherche:
Interpreting Groups: the “Social” Archaeology
French National Centre for Scientific Research | CNRS
Institut des Sciences humaines et sociales (INSHS)

**TUE**
18:30 Prof. Tim A. Kohler: Socio-Environmental Dynamics and the Creation of Landscapes
Washington State University, Archaeology and Evolutionary Anthropology

**THU**
17:30 Prof. Christine A. Hastorf: Intimate Plants: Constructing Past Identities Through People’s Relationships with Their Plants
University of California at Berkeley, Anthropology Department
(Graduate School Human Development in Landscapes, Kiel University)

ABSTRACTS

Interpreting Groups: the “Social” Archaeology
Prof. Laure Salanova
‘Directrice de recherche au CNRS et Habilitée à diriger des recherches’
French National Centre for Scientific Research | CNRS
Institut des Sciences humaines et sociales (INSHS)

In her lecture, Ms Salanova will concentrate on the social sphere of past populations: How to approach and implement definitions and systems of social groups in archaeological contexts: **Interpreting Groups: the “Social” Archaeology**

Several authors have emphasised the great confusion spread by recent publications dealing with interpretation of material remains from past populations, which are often arbitrarily classified according to poorly defined systems. In the framework of this Congress, I will focus the discussion on the economic activities, trying to understand through the crucial differences observed in the field of the taxonomy on international scale what is due to cognitive development of researchers and what is due to their area of expertise.

Socio-Environmental Dynamics and the Creation of Landscapes
Prof. Tim A. Kohler
Washington State University, Archaeology and Evolutionary Anthropology

We are scaling up the questions we ask in archaeology to address questions about change in larger chunks of space and time. Inevitably we take some position on causation as we do so, though many of us hold deeply ambivalent and often largely unarticulated attitudes about causation in socio-natural systems that tend to be attached to theoretical predilections. This is manifested in many fancy indirect ways of talking about causation without really talking about it. I address questions of causation as they have presented themselves in the traditional inferential and the less-traditional, deductive/modeling approaches that we have pursued in the Village Ecodynamics Project in the US Southwest (and its follow-on projects) over the last two decades. These approaches raise many interesting open problems. If we cannot achieve clarity in our descriptions of causation then we have no lessons from archaeology to bring to our current problems and those we expect to face in the near future.

Intimate Plants: Constructing Past Identities Through People’s Relationships with Their Plants
Prof. Christine A. Hastorf
University of California at Berkeley, Anthropology Department

Plants have been the most common non-human set of species that people have engaged with over human existence. While most people speak of domesticating plants, they too have domesticated us. They have formed intimate relations with us, having convinced our ancestors to settle down and care for them. At times they have become kin, moving with us and sustaining us like a good grandmother. How can we see these intimate relationships with plants in the past, given that they are often scarce in archaeological sites? By thinking about plants in more social ways we can begin to get closer to people’s choices, values and engagements with plants as we accept that this has been an intimate relationship since the palaeolithic times.
Alumni of Graduate School Human Development in Landscapes
Monday March 11th, Lecture Hall

MON 14:00 Barbarians in the letters of Sidonius Apollinaris: a project report
Veronika Egetenmeyr (University of Greifswald)
14:25 Chronologies and interrelations in the Corded Ware and Bell Beaker phenomena
Ralph Großmann (Kiel University)
15:20 Visualizing Lodovico Domenichi's “Ragionamento nel quale si parla d'imprese d'armi, e d'amore” from 1574
Maren Biederbick
15:45 Roman Settlement Patterns in Southern Latium
Michael Teichmann
16:10 Beyond the Archaeosediment
Carolin Langan
16:35 3D and archaeology: the digital turn in the light of two research projects
Gianpiero Di Maida
17:30 Neolithic and medieval virus genomes reveal the complex evolution of Hepatitis B
Ben Krause-Kyora (Kiel University)

ABSTRACTS

Barbarians in the letters of Sidonius Apollinaris: a project report
Veronika Egetenmeyr (University of Greifswald)

Sidonius Apollinaris, a Gallo-Roman aristocrat and later bishop of Clermont-Ferrand, is one of the most fascinating personalities of fifth century Gaul. Through his nine books of letters, which are composed in the classical tradition of the Roman epistolography, he provides an insight into his daily life and offers his perspective on political, religious and social transformations. As the power of non-roman communities (e.g. Goths and Burgundians) rose in the Gallic provinces, he reveals in one of his epistles that he wrote under great anxiety since his town was surrounded by a “sea of tribes” (Sidon. Ep. III 4.1). Consequently, Sidonius emphasizes the importance to protect Roman culture, classical traditions and paideia, which he describes as threatened by the barbarians. His letters present an impression of a world in decline and struggle, in which education, apparently the only marker of nobilitas and therefore part of his identity, was fading away. As expected, he applied traditional stereotypes and prejudices in his depiction of barbarians, represented as uneducated, unaware of social customs and wild animals. Even though he adopted these specific topoi for their description, Sidonius’s perception is not entirely restricted by classical conventions, but shows the transformation his own society was going through. In the light of the recent challenge regarding self-awareness and identity, I will focus on how Sidonius described “barbarians” in his letters and how he transformed the picture of the “barbaric other” in contrast to his own self-identification.

Chronologies and interrelations in the Corded Ware and Bell Beaker phenomena
Ralph Großmann (Kiel University)

This paper presents the results of the dissertation: “Das dialektische Verhältnis von Schnur-keramik und Glockenbecher zwischen Rhein und Saale”. The Late Neolithic Bell Beaker and Corded Ware complexes are commonly viewed as clearly bounded phenomena of burial rituals and material culture. Conversely, common traits and overlapping characteristics have also been pointed out, and have been interpreted as interrelations between two distinct groups of people. In this paper, this phenomenon is studied in two German regions – the Rhine Basin and the
Thuringia Basin. Here, it can be shown that burial customs and vessel decorations display considerable overlaps, especially in spatially and temporally close contexts. Furthermore, Corded Ware and Bell Beaker consist of sub-groupings and different vessel types. This phenomenon will also be regarded in relation to temporal and spatial aspects. This paper focuses also on the Bell Beaker and Corded Ware chronologies which based on vessels and absolute data. Moreover, changes concerning the spatial distribution of both phenomena will be pointed out.

Visualizing Lodovico Domenichi’s “Ragionamento nel quale si parla d’imprese d’armi, e d’amore” from 1574

Maren Biederbick (Deutsches Medizinhistorisches Museum)

Based on a Renaissance book from 1574 about identity signs the compilation of a catalogue of artefacts, displaying and analysing what 500 years ago two of its authors have described, was the starting point of the PhD-thesis about human inscriptions of identity into lands-capes. The emblem expertise gathered thereby opened the path to a curator’s traineeship in a museum where 300 objects of various shape – coins, medals, badges, Militaria – spread over the vast depot waiting to be properly registered. Assembled now after two years they form as Medicina in nummis a special collection of that museum, adding thus another aspect to ist identity on an international scale. It is on medals indeed, where even in a small context identity can be preserved over a long time span. With a portrait on the obvers and a significant picture and a short motto on ist reverse the idea within is transferred more easily to a recipient since the Roman antiquities than through the lecture of a book. Today still identification takes places in images. We grasp pictures the instant we see them. Given this, another Renaissance text awaits its break through: The RAGIONAMENTO NEL QUALE SI PARLA D’IMPRESE D’ARMI, E D’AMORE by Lodovico Domenichi [1515- 1564]. Published as third part in the book above mentioned, this text has always been neglected in comparison to the first two parts. This might be due to the lack of illustration. While the signs described by namely Paolo Giovio and Gabriele Simeoni have been furnished with woodcuts, the editor Guillaume Rouillé printed Domenichi’s sign-descriptions just as plain text. The reason is not, that Domenichi wrote with less quality. A glimpse on the first passages of his text reveals that we find here the sign-documentation of other just as im-portant persons. A quick search in the respective material culture proves the existence of these signs in applied emblems. What we know is that Simeoni draw the first illustrating sketches for both – Giovio’s and his text. Unlike Rouillé Simeoni had no close contact to Do-menichi. Thus to him there was no reason to illustrate the work of his compatriot. In consequence of the bibliographic history of Domenichi’s text modern image-databases for emblem researchers do not include the signs described by him. As Domenichi adds in his text more corporate identity examples of northern Europeans, which so far were scarcely represented by Giovio and Simeoni, it is a worthwhile project to fill this gap with more information. I would like to present how by 2D-Scans of the signs on material culture Domenichi’s text can be given reliable illustration. Once these will be entered into the existing databases like ICON CLASS they will by their visual presence finally have a chance of being respected in further picture analysis. And, who knows yet, they can be the missing link to the habit of northern pictural identity marketing in early modern times.

Roman Settlement Patterns in Southern Latium

Michael Teichmann

While my PhD research conducted at the University of Kiel had focused on the complex relation-ship between men and landscape in south-western Latium in Roman Antiquity with an emphasis on geo-archaeological research questions and landscape transformation pro-ces-ses, the present paper centers on the analysis of Roman settlement patterns in the same region. While initial research on Roman settlement patterns was already undertaken in my thesis for the southern Provincia di Roma as a case study, nine additional research areas were analyzed and embedded in the wider discourse on Roman settlement archaeology since than. The present paper applies quantitative analyses to improve our understanding of Roman settlement patterns in southern coastal Latium. Records for more than 5000 archaeological sites were gathered. One of the central research questions concerns the in-terdependence of landscape types (such as alluvial plain, coastline, volcanic hill or limestone mountain) and factors, which were decisive for locational choices. Descriptive site location analysis was conducted for different site types in respect to environmental and cultural parameters with a potential influence on the choice of site locations. These factors comprise variables derived from the elevation model such as altitude, slope or exposition, background geology, soils, the cost-distance to resources (rivers) as well as cost-distances to elements of the cultural landscapes such as roads, sanctuaries and towns. A comparison was undertaken for different site types in the same „micro-region” as well as for the same site type in different environmental settings. In a further step the patterns observed for the study area were compared with results of further published quantitative studies on Latium and Campania to identify similarities and differences. Additional analyses concerned site density distribution and intervisibility. The former analy-ses the spatial distribution of different site types in the study area, identifying centers of activity. The latter assesses the role of visibility for important elements of the cultural lands-cape such as villas, towns, roads and sanctuaries. Visibility may have been of relevance for aspects of social representation and a visual dominance of the landscape.
Beyond the Archaeosediment

Carolin Langan (Institute for Physical Geography, Goethe University, Frankfurt/M)

After completing my Diploma in Agricultural Sciences and Environmental Management, I saw a great opportunity to pursue my interest in geoarchaeological research at the Graduate School in Kiel. The Graduate School encouraged me to move beyond the frontiers of specific disciplines, to learn new techniques, broaden my knowledge and work interdisciplinarily. During my PhD I conducted geoarchaeological research on a multi-layered settlement structure which had persisted for several thousand years using a multiproxy approach. This research elucidated both natural and anthropogenic influences on the site formation and highlighted the enormous human impact on the environment. The acquired skills created the preconditions for my PostDoc time in Frankfurt. I broadened my research collaborating in different geoarchaeological projects, always with the focus on the impact of historic settlers on their environment reflected within the sediments.

Microscopic archaeosediment analysis often revealed vitrified material, which was assumed to be melted phytoliths. We conducted combustion experiments using different plant compartments of cereals exposing them to different temperatures. We found that plant compartments react differently to varying temperatures, yet all parts are completely molten at 800°C. Sediment analysis remained in my focus when comparing 6 different multi-element analysis methods. Evidence was provided that pXRFs, a quick and cheap method, is highly suitable for multi-element analysis in the archaeological context. Geochemical analysis was also applied to an early Holocene floodplain soil. The occurrence of the so-called “Black Floodplain Soil” (BFS) is a widespread phenomenon in Central Europe, yet its genesis is still poorly understood. In two different locations in Germany the BFS was analysed. These results reveal a complex milieu genesis.

3D and archaeology: the digital turn in the light of two research projects

Gianpiero di Maida (Neanderthal Museum)

To document the rock and mobile art record of Sicily (object of a PhD project), several digital methods have been implemented, chosen to fit the given peculiarities and to obtain the best results, case by case. Behind the application of such methods, the comparison with the old documentation, the theoretical reflection, the necessary upgrading process were all a constant presence. Even once realized, the products of this documentation’s process continued to pose new questions and challenges: the digital items give their best if implemented in a network, if they are given the possibility to be re-used, mixed, played with, which is often an impervious outcome, because of a general lack of infrastructures to host them.

The same focal points, the same questions, the same issues, if possible amplified by the larger number of items object of analysis and by the additional didactical perspective of the whole operation, re-presented themselves in the DISAPALE project (Digitale Sammlung Palaeolithischer Leitformen) hosted and supported by the Neanderthal Museum, financed by the Bundesministerium für Bildung und Forschung: this project aims at creating a 3D digital catalogue of Palaeolithic lithic types from Europe. Lithic objects from different continental collections (starting from the one hosted by the Friedrich-Alexander Universität Erlangen-Nürnberg) will be scanned in 3D, organized in a catalogue according to typological categories, and finally made available for the final users on the NESPOS platform.

This lecture will briefly present the digital-documentation-related most relevant aspects of the old and current project, trying to address some of the above-mentioned issues, combining them with a long-run perspective.

Neolithic and medieval virus genomes reveal the complex evolution of Hepatitis B

Ben Krause-Kyora1, Julian Susat1, Alexander Immel1, Felix M. Key2, Denise Kühnert2, Christoph Rinne3, Alexander Herbig2, Johannes Krause2, Almut Nebel1

1 Institute of Clinical Molecular Biology, Kiel University, Kiel, Germany
2 Max Planck Institute for the Science of Human History, Jena, Germany
3 Institute of Prehistoric and Protohistoric Archaeology, Kiel University, Kiel, Germany

Emerging and re-emerging infectious diseases are an important topic in modern healthcare. By connecting knowledge in history, anthropology and microbiology to describe the epidemic pathogens in ancient populations, we provide relevant information concerning modern infectious diseases, such as the sources of pathogens and their routes of introduction and transmission among human populations in the long term. Due to advances in molecular analysis over the last two-decade ancient DNA (aDNA) of pathogens offers a new approach for the study of Infectious diseases and host-pathogen interaction. Despite these advantages, identification of authentic viral sequences from ancient material is still challenging. Here, we report the analysis of three hepatitis B virus (HBV) genomes from skeletal remains dated to the Neolithic (Karsdorf and Sorsum) and Medieval Period (Petersberg) in Central Europe. HBV is today one of the most widespread human pathogens, with one third of the world population being infected, and an annual death toll of about 1 million globally. The origin and evolutionary history of HBV is still unclear and controversial. Our results demonstrate that HBV already existed in Europeans 7000 years ago and that its genomic structure closely resembled that of modern hepatitis B viruses. Phylogenetic network analysis revealed that the two Neolithic genomes are most closely related to today’s African non-human primates. Although the two Neolithic strains were recovered from humans who had lived about two thousand years apart, they show higher genomic similarity to each other than to any other human genotype. The genome from the 1000-year-old Petersberg individual clusters with modern D4 genotypes.
Space, the final frontier – Transformation of social space in forager societies

TUESDAY March 12th & WEDNESDAY March 13th, Lecture hall
Session organizers: S. Grimm, D. Groß

08:30 Going Where No Archaeologist Has Gone Before: Testing A Polythetic Model Integrating Place, Landscape and Mobility with Material and Socio-Cultural Perspectives to Understand the British Mesolithic
Paul Richard Preston (Lithoscapes Archaeological Research Foundation)

08:50 Add now to here for nowhere. Reflections on Mesolithic short term camps and long distance networks
Daniel Groß (Centre for Baltic and Scandinavian Archaeology)

09:10 What to infer from lithic chaos? An example from Mesolithic southeast Norway
Guro Fossum (Museum of Cultural History, University of Oslo)

09:30 Exploring long-term variation in spatial organization in Mesolithic southeastern Norway, 11 400-9500 cal. BP
Keynote lecture: Steinar Solheim (Museum of Cultural History, University of Oslo)

10:30 Small Blades and Great Social Traditions
Sandra Söderlind (Graduate School Human Development in Landscapes)

10:50 The landscape-social-resource-space game. A sketch of some facets based on ethnoarchaeological data from the Evenk
Ole Gran (Dept. of Geosciences and Natural Resource Management, University of Copenhagen)

11:10 Defending the taiga? Complex enclosed Stone Age hunter-fisher settlements in Western Siberia
Henny Piezonka (Institut für Ur- und Frühgeschichte, Christian-Albrechts-Universität Kiel)

11:30 Lifeways at Star Carr and beyond: an evaluation of spatial organisation at different scales
Keynote lecture: Nicky Milner (Department of Archaeology, University of York)

13:30 Spatial organization and functional diversity of the Mesolithic settlement features from the area of central Poland
Grzegorz Osipowicz (Institute of Archaeology, Nicolaus Copernicus Univ. in Toruń)

13:50 In the heart of the Ahrensburgian – what do we actually know about the Final Palaeolithic hunter-gatherers in northern Germany?
Sonja B. Grimm (ZBSA / CRC 1266)

14:10 Lightening the load! Approaching Late Upper Palaeolithic human behaviour before the cold season
Markus Wild (ZBSA / University of Kiel / University Paris 1 - Panthéon-Sorbonne)

14:30 Reconstructing Hunter-Gatherer Paleoeconomy at a More Local Scale: the Langmahdhalde Faunal Assemblage as a Case Study
Gillian Wong (University of Tübingen)

14:50 Discussion

15:30 Abundance and seasonality – Untangling the organization of space among the mid-Holocene estuary populations of NW Finland
Satu Koivisto (University of Helsinki, Finland)

15:50 Complex architectural structures of the early Neolithic of the North of Western Siberia (based on materials from the ancient settlement Kayukovo 2)
Georgii Vizgalov (Surgut State University/ Institute of Humanities and Sport)

16:10 Approaching cultural meanings to natural spaces in the Mesolithic of Mecklenburg-Vorpommern
Felicitas Faasch (Universität Hamburg)
16:30 Ahrensburgian and Swiderian tanged points as indicators of a far reaching social network?
Katja Winkler (CAU Kiel/GSHDL)

16:50 Discussion

17:30 Mobility and land use during the Mesolithic in southern Scandinavia
Mathilda Kjällquist (National Historical Museums)

17:50 Mapping the social landscape of the Early Holocene settlement of Kerkhove-Stuw (BE)
Hans Vandendriessche (Ghent University)

18:10 Where was home? Inter-spatial land use by Late Quaternary hunter-gatherer populations in the central Narmada basin, India
Nupur Tiwari (Indian Institute of Science Education & Research, Mohali, Punjab, India)

ABSTRACTS
Space, the final frontier – Transformation of social space in forager societies

Keynote speakers: Nicky Milner (Department of Archaeology, University of York), Steinar Solheim (Museum of Cultural History, University of Oslo)
Session Organizers: S. Grimm, D. Groß

Besides time, spaces and spatiality are important measures in archaeology. Intra-site analyses are used to understand local processes, while inter-site comparisons help us to understand traditional spatial organisations of groups. We address local structures on a small scale, settlement systems or kinship networks on an intermediate scale, and trade routes and territories on a large scale. Hence, we essentially aim to identify social units and the social use of space in the past.

In contrast to well organised settlements of sedentary groups, spatiality becomes more complex when dealing with mobile forager societies due to the number of sites, their different functions, and the limitations of their identification. In this session, we want to address spatial aspects of prehistoric hunter-gatherer societies, and discuss our possibilities and challenges for identifying ranges, information networks, kinships, and identities. How do we identify social bonds and territories? Are the territories we identify the range of a family group or a larger information network? Are two very different sites an expression of different tasks, different purposes, different occupation time, different group sizes, or of different groups with different toolkits and/or coping strategies? Hence, we aim to discuss the social dimension of space and how we identify it in the archaeological record.

Assuming that the spatial behaviour of foragers is rather stable since it represents an adaptation to their environment and landscapes, we wonder when and why does this socio-spatial behaviour change? How can we identify substantial changes in socio-spatial behaviour that may be crucial for major transformations in the past like the Palaeolithic-Mesolithic transition?

Therefore, we welcome papers that in particular focus on aspects of transformation in relation to the social dimensions of space in forager societies.
Going Where No Archaeologist Has Gone Before: Testing A Polythetic Model Integrating Place, Landscape and Mobility with Material and Socio-Cultural Perspectives to Understand the British Mesolithic.  

Paul Richard Preston (Lithoscapes Archaeological Research Foundation)

Going Where No Archaeologist Has Gone Before: Testing A Polythetic Model Integrating Place, Landscape and Mobility with Material and Socio-Cultural Perspectives to Understand the British Mesolithic. While interpretations are becoming more ambitious, several factors limit our ability to understand the Mesolithic occupation of the landscape. In particular, the polemic of the science wars has resulted in premature zero-sum rejections of approaches (irrespective of their value) due to an empiric/postmodern association. This leads to biased mono-nothetic models with an over-concentration on specific aspects of human behaviour, one type of evidence (e.g. attributes, artefacts, contexts, or features), specific sites or regions, or the sole use of either a micro-on-site or the macro-off-site-landscape scale of analysis. Interpretations are limited further by a failure to distil theories into assumptions and testable hypotheses, inappropriate wholesale application of ethnographic analogies, a poor understanding of chaînes opératoires, and an inability to accommodate new discoveries. The net result is un-testable, non-replicable, incompatible, usually non-databased, and highly partisan interpretations. This paper takes the best of these approaches and proposes (as a proof of concept) an explicitly defined analytical model that is both scientifically rigorous as well as economically and socially engaged: The Sites, Landscape, Mobility, And Material-Culture Polythetic Model. Hypotheses derived from the model are tested using data from 792 Mesolithic sites in the Pennine region of Northern England. Consequently, it proposes a hitherto unappreciated narrative, outlining the flexible ways that Mesolithic people inhabited the landscape based on both subsistence and cultural practices. It concludes that Mesolithic groups situated sites on a network of traditionally used transit routes, adjacent to repeatedly visited and highly in-vested in (both socially and practically) culturally significant landmarks and places. In turn, the technological organisation intimately linked interplays of onsite knapping, high levels of landscape-wide lithic importation, coupled with an increased occurrence of flexible knapping stra-tegies, raw material availability, risk, mobility strategies, and cultural practices.

Add now to here for nowhere. Reflections on Mesolithic short term camps and long distance networks

Daniel Groß (Centre for Baltic and Scandinavian Archaeology)

The identification of new archaeological sites is, among some other factors, usually dependent on the number of finds. Generally speaking, the more finds are present, the more likely a site is recognised by professionals or amateurs and thus possible to become a subject of awareness, e.g. during construction work etc. However, such sites usually do not provide the best preconditions for an in-depth understanding of prehistoric hunter-gatherer settlements due to the vast number of artefacts that often represent multiple occupations. In this contribution I will discuss different sites that are proven to be single phased and badly represented — from a lithic perspective. Special focus will be given to sites that are not well characterised by ex-tensive artefact assemblages but rather by specific features or find situations. Though not in-visible, such aspects tend to be less obvious in the archaeological record and thus considered of minor relevance, especially from a quantitative point of view. As I will highlight, yet the contrary is the case: These sites provide very important insights into prehistoric spatial behaviour and land use. My argument will be underlined by different archaeological examples and it will be discussed what these sites can actually tell us about prehistoric spatial behaviour. Further-more, possibilities are discussed that we have to integrate them into a wider settlement sys-tem and which, if any, social consequences result from this. By integrating these thoughts into the wider cultural framework, it will also be briefly reflected upon the emergence of long-distance networks and how we are able to trace them for understanding underlying communication networks.

What to infer from lithic chaos? An example from Mesolithic southeast Norway

Guro Fossum (Museum of Cultural History, University of Oslo)

Mesolithic sites are abundant along the Oslo fjord in southeast Norway. Due to the constant marine regression in the Oslo fjord area, shore bound sites from all prehis-toric periods are located above present-day sea level. The glacio-istostatic rebound provides us with a unique chronological sequence of shore bound Mesolithic sites. These sites are poorly preserved in terms of organic remains, but are rich when it comes to lithic material. The lithic assemblage may be viewed as multi-temporal as it allows us to perceive past, present, and future actions at Mesolithic sites. In this paper, I will particularly focus on the future dimensions of lithic assemblages, and I will use minimum analytical nodule analysis (MANA) in order to discuss how the hunter-gath-erers in southeast Norway planned and moved about in the landscape. The paper will focus on sites dated within the timespan 7000-5600 cal BC, but sites dated between 8000-7500 cal BC will be included as a frame of reference. MANA is a method for identifying the temporal and spatial patterns of the lithic technological organisation at the given sites. Further, it provides a basis for discussing landscape use and social networks in Mesolithic southeast Norway (and adjacent areas).
Exploring long-term variation in spatial organization in Mesolithic southeast Norway, 11 400-9500 cal. BP
Steinar Solheim (Exploring long-term variation in spatial organization in Mesolithic southeast-northern Norway, 11 400-9500 cal. BP)
Co-Authors: Hege Damlien, Museum of Cultural History, University of Oslo Lucia U. Kox-vold, Museum of Cultural History, University of Oslo

Questions of changes in demography and the spatial organization among hunter-gatherer groups during the Mesolithic is yet to be explored in detail for South Norway. In recent years, large-scale excavations in South Norway have provided a series of high quality lithic assemblages dated to the Early and Middle Mesolithic, providing better resolution for discussing long-term variation in socio-spatial behavior. Previous studies indicate that whereas the settlement system during the Early Mesolithic can be characterized as highly mobile, a more permanent settlement within specific landscapes and territories is suggested for the Middle Mesolithic. Moreover, compared to Early Mesolithic sites, the Middle Mesolithic settlement sites seem to represent different types and activities, varying from extensive residential sites where a variety of tasks were undertaken to sites focused on single tasks indicating short occupations and specialized use within a single settlement pattern. A parallel shift is also observed in material culture. Major changes in the lithic technology are demonstrated at the Middle Mesolithic transition, c. 10 300 cal. BP, with the introduction of pressure blade technology known in preceding centuries from the East European Plain. The leading hypothesis is that the technology was introduced to the region by migrating groups from the east. The relatively sudden appearance and rapid spread of the technology in southern Norway indicate a collapse of the existing technical system or even a demographic replacement. More detailed studies are how-ever needed in order to understand if and in what ways these changes are related. By compa-ring long-term lineages and interrelated fluctuations in C14-data and site intensity along with intra-site studies of lithic remains (MANA), we explore the factors influencing long-term trans-formation in spatial organization in the Early and Middle Mesolithic of South Norway. We will argue that the changes observed in settlement system and lithic technology must be seen in relation to postglacial environmetal settings, increased regionalisation and an transformation of established large scale social networks during the Early and Middle Mesolithic.

Small Blades and Great Social Traditions
Sandra Söderlind (Graduate School Human Development in Landscapes)

Social spaces and interactions between people during the Mesolithic are, for obvious reasons, difficult to study today. However, some types of interactions will produce physical traces. This is true for interactions that involve the teaching/learning of a material cultural tradition, such as flint knapping. When teaching or learning flint knapping techniques, two types of informa-tion must be transferred in order to maintain and/or spread a cultural tradition; a more theo-retical knowledge and a more practical know-how. The transmission of knowledge and know-how involve people learning from other people and because of that, technology can be studied as a social tradition. The use of pressure techniques, for producing blades, has been es-tablished to include a large amount of technological complexity. The reason for this is that pressure techniques comprise various technological steps, such as the making of related tools and devices, pretreatment of flint, special knowledge of body positioning etc., all of which can be seen as social arenas. Due to this technological complexity, implemented pressure techni-ques make good subjects for studies of transmission of knowledge and social interaction on a variety of spatial scales. In many Mesolithic forager societies in northern Europe, the use of a pressure technique for the production of small blades (microblades), was an important and prominent part of tool production. During the Late Mesolithic, this technique appears in se-veral parts of the research area, included in a technological concept relating to a specific type of elongated, single-fronted core, known as a handle core or wedge-shaped core. Where the technology was invented, or introduced from, and how it spread over northern Europe remains unclear but is currently being researched in the scope of a PhD-project. As a part of this project, this paper will present and discuss how the handle core concept can be used for furthering our understanding of social interac-tions, the transmission of cultural traditions and the social use of space during the Late Mesolithic in northern Europe.

The landscape-social-resource-space game. A sketch of some facets based on ethnnoarchaeo-logical data from the Evenk.
Ole Grøn (Dept. of Geosciences and Natural Resource Management, University of Copenhagen)

Hunting-gathering cultures’ strategies for living in and exploiting the landscapes they inhabit can be seen as a game with the purpose of providing as nice a life for themselves as possible. The aim is to place yourself in a situation where you have access to an optimal amount of nice and varied food, comfortable living condi-tions, social interaction including love and sex, re-laxation, a minimum of conflict, etc. Discussions with the Evenk demonstrated that they were able to develop new strategies matching new situations if basic elements in their applied stra-tegies were changed. Obviously, their strategies were based on a detailed understanding of the dynamic and varying possibilities in their landscapes to a much higher degree than on traditional repetitive cultural strategic elements. In this ‘game’ storage of food as well...
Defending the taiga? Complex enclosed Stone Age hunter-fisher settlements in Western Siberia

Henny Piezonka (Institut für Ur- und Frühgeschichte, Christian-Albrechts-Universität Kiel)
Co-authors: Natalya Chairkina (Ekaterinburg, Russia), Oleg Kardash (Nefteyugansk, Russia), Dmitri Enshin (Tyumen, Russia), Ekaterina Dubovtseva (Ekaterinburg, Russia), Ekaterina Girchenko (Tyumen, Russia), Lyubov Kosinskaya (Ekaterinburg, Russia), Svetlana Skochina (Tyumen, Russia), Viktor Zakh (Tyumen, Russia)

When do hunter-gatherers build fortifications? What are the reasons for the construction of complex enclosed settlements, and what role do they play in the negotiation and appropriation of space? These questions touch on a central but underexplored field in current anthropological debates on peace, war and the human nature. The emergence of fortified sites among Stone Age hunter-gatherers in the Western Siberian taiga in the 7th-6th millennium BCE is an outstanding and unique phenomenon in world prehistory. Although representing one of the earliest instances of communities enclosing and fortifying their settlements world-wide, the phenomenon has not been recognized beyond regional Russian archaeology and remains virtually unknown in the wider scientific community. The early enclosed sites in the taiga coincided with a range of other innovations that bear witness to substantial sociocultural and economic changes, among them the appearance of pottery vessels, the foundation of sacrificial mounds, and a rise in pit houses reflecting increased settlement density. It is unclear, however, what led to such complex hunter-gatherer life-ways with new enclosed complex settlement types. Did intergroup conflicts develop that were severe and foreseeable enough to necessitate the construction of defences? Did ritual or communal drivers lead to new forms of appropriating space and landscape? Which internal social and cultural mechanisms, external influences and environmental factors have been at play in these processes? Further peaks of fortification construction in the Siberian taiga occur in the Iron Age and in early modern times. Ethnological and historic archaeological evidence in Western Siberia indicates that such defences were protecting hunter-fisher communities from raids of other foraging groups and of herding nomads from the steppe, taiga and tundra. The evidence also shows that complex agglomerated and partly subterranean architecture in the north, besides a defensive function, also be connected to an adaptation to the climatic conditions of the Siberian winters. Investigations of the phenomenon of the Stone Age Siberian complex enclosed settlements have the potential to open up a new facet in hunter-gatherer archaeology and to enhance the understanding of the rise and effects of intergroup conflict in apezhalous, heterarchical societies. The talk will present first results from joint Russian-German research in Western Siberia devoted to the study of Early Holocene settlement systems and defensive constructions based on an integrated multi-proxy approach including survey, small-scale excavation and radiocarbon-dating as well as geoscientific, zooarchaeological and archaeological studies. In 2016 to 2018, the joint work has concentrated on the sites of Mergen 6 in the Ishim forest steppe and on Kayukovo 2 in the taiga of the middle Ob’ region. First results of this ongoing research provide new information on structure, function and chronology of the sites and on their environmental and cultural setting. On this basis external influences, internal social and cultural mechanisms, and environmental factors at play are investigated. The results will lead to a better understanding of the character of the sites and of their position within the cultural landscape and the inter-group dynamics of this period in the forest steppe and taiga zone.

Lifeways at Star Carr and beyond: an evaluation of spatial organisation at different scales

Nicky Milner (Department of Archaeology, The University of York)

Recent excavations at Star Carr have produced vast quantities of data and through mapping using 3D recording and GIS, combined with Bayesian modelling of radiocarbon dates, it is possible to examine the spatial patterning of activities of hunter-gatherers over an c. 1000 year period. We can look at how structures on the dry land were used and the differences in their usage, as well as considering the activities that took place on the lake edge. Beyond Star Carr, work around Lake Flixton can help us consider other types of site within the landscape which were probably contemporary with Star Carr, as well as some which are slightly earlier, and show very different ways of living. Finally, more broadly, the many artefacts and certain kinds of activities from Star Carr provide hints of links on a much larger scale, with other parts of the UK as well as in Germany and Denmark. These suggest networks, or perhaps trade routes and territories on much larger scales. This paper will present some of our new data and consider important questions around the social dimension of space and possible reasons for change.
Spatial organization and functional diversity of the Mesolithic settlement features from the area of central Poland

Grzegorz Osipowicz (Institute of Archaeology, Nicolaus Copernicus University in Toruń)

In presentation will be presented the preliminary results of spatial studies conducted for several Mesolithic sites from Chełmno-Dobrzyń Lake District (central Poland). The research included results of technological, typological and traceological analysis of stone artefacts, findings made during the archeozoological, anthracological and palynological investigations, 
14C dating and results of physical-chemical analyses of the substances sampled from stone and flint artefacts (mainly SEM-EDX and GC-MS). Studies have enabled observation of clear regularities in the internal organization of the analysed camps and the settlement structures identified within them, inside which one can distinguish repetitive systems of the various types of economic and utility zones. Differences in size, structure, probable duration and function of the individual structures were also recorded (including those from the same camps), which clearly indicates large variety and probable hierarchy of the settlement facilities used in Mesolithic. Taking into account results of the conducted studies, an attempt was made to classify such structures and to answer the question about their position in the mobility systems of the Mesolithic hunter-gatherer communities, in the context of contemporary ethnological and archeological concepts on the subject.

The work was funded by the scientific project from the National Science Center (NCN) in Cracow (Poland) no. 2016/23/B/HS3/00689.

In the heart of the Ahrensburgian – what do we actually know about the Final Palaeolithic hunter-gatherers in northern Germany?

Sonja B. Grimm (ZBSA / CRY 1266)
Co-authors: Benjamin Serbe, Moiken Hinrichs, Katja Winkler, Ingo Clausen, Sascha Krüger, Mara-Julia Weber, Berit Valentín Eriksen

The Ahrensburgian was defined in 1928 by Gustav Schwantes and in 1968 Wolfgang Taute published his seminal work on the tanged point groups of northern Central Europe including the Ahrensburgian. We used these anniversaries to have a closer look at our progress in un-derstanding these last Palaeolithic hunter-gatherer groups in northern Europe. At the foot of the eponymous site of the Ahrensburgian, the Stellmoor hill, Alfred Rust excavated in the late 1930s/ early 1940s and found besides the numerous reindeer remains also wooden artefacts such as composite arrows. Due to this rich inventory and the numerous tanged points in the surrounding, the area around the Ahrensburg tunnel valley was generally assumed as the core region of the Ahrensburgian. Furthermore, the Ahrensburgian was considered since as a spe-cialised reindeer hunter society. However, based on the climatic development a retreat of hunter-gatherer groups from the northern areas during the Dryas 3 was occasionally suggested. Yet, for the earliest settlement of southern Scandinavia an ancestral relation with the Ahrensburgian is regularly discussed. In contrast, the origin of the Ahrensburgian is rarely discussed and often assumed in the Bromme context. Hence, the review of the spatial distribution of the Ahrensburgian in northern Germany in combination with techno-typological and chronological considerations gives us enough food for thought about this last Palaeolithic society in northern Germany.

Lightening the load! Approaching Late Upper Palaeolithic human behaviour before the cold season

Markus Wild (ZBSA / University of Kiel / University Paris 1 - Panthéon-Sorbonne)

The settlement of Homo sapiens in northern Germany began around 14 500 years ago with the Hamburgian hunter-gatherers of Magdalenian tradition. While their ancestors were living in the mid-range mountain belt or even further south, the Hamburgian people were facing the wide and open landscape of the Lowlands. Despite the many sites that have been discovered within the last century, little is known about the behaviour of these people. A handful of sites brought – besides lithic remains – evidence of hunted fauna in nearby dump zones. Reindeer was the predominant species, which was not only exploited for its meat, fat and fur but also for its antler, which was used in the production of tools and projectiles. Of the few Hamburgian sites with the preservation of organic finds, the Classic Hamburgian sites of Stellmoor, Meiendorf and Poggenwisch, as well as the Havelte site of Slotseng, all point towards an au-tumn presence of hunter-gatherers. This season is of particular interest for analysing the b-ehaviour of human groups that are at least partly dependent on reindeer, as it is the time of the great migration and the hunting of reindeer is particularly easy. Furthermore, during this period, the fur is of good quality, the fat reserves are close to being in prime condition and the antlers are fully grown and mineralised on all reindeer. However, it is also the time when Late Upper Palaeolithic people had to face the winter, which is thought to have been longer and colder than that of today. Therefore, the autumn was not only the season of opportunities but it was also the season of the highest risk of failure, which could end up in the starvation of the group. This paper presents the recent results of a technological study of antler working in the Hamburgian. In combination with zooarchaeological data, it is possible to decipher human social behaviour and unravel hunting and antler acquisition strategies in time and space. By including slightly older Magdalenian assemblages – in particular from the site Verberie (Buis-son-Campin) in the Paris Basin and also comparative data from
Fish have constituted an essential part of subsistence and diet among the prehistoric foragers and even later agrarian populations of coastal northern Ostrobothnia, NW Finland. A balanced subsistence strategy is dependent on several ecological, physical, and biological factors, which are governed by climatic and environmental circumstances. It has been suggested that the hunter-fisher-gatherer groups of northern Ostrobothnia have adapted their site location strategies to maximize fishing by the mouth and banks of the Iijoki River c. 5000–3000 calBCE. The prime resource for the forager/collector population equipped with the necessary mass-harvesting technological skills has consisted of migratory fish, specifically Atlantic salmon. The productive fishing grounds have probably been the prime motive for the initial stage of settlement in the area, beginning c. 5000 calBCE. Later, c. 4000–3500 calBCE, the occupation by the abundant fishing waters may have become more significant and the settlement pattern has approached semi or full sedentism. Changes in the settlement pattern from ca. 3500 cal BCE onwards may be seen as reflecting increased social complexity, which may have allowed joint initiatives in resource procurement, for instance mass-fishing. Riverbank housepit villages, especially the ones located by the rapids and islands, may be assumed to have been associated with mass-harvesting and/or processing locations of seasonally and spatially aggregated resources. The stability of the local resource base accompanied by the abundance and resilience of the main food resource may support the idea of socioeconomic competition, which may explain some characteristics of the sites, such as the clustering of housepits, the site locations, and the artefactual assemblages and materials.

Complex architectural structures of the early Neolithic of the North of Western Siberia (based on materials from the ancient settlement Kayukovo 2)

Georgii Vizgalov (Surgut State University/ Institute of Humanities and Sport)
Co-authors: Oleg Kardash, Svetlana Lips, Institute for the Archaeology of the North (Nefteyugansk, Russia), Henny Piezonka (Institut für Ur- und Frühgeschichte, Christian-Albrechts-Universitaet Kiel)

The ancient residential complex Kayukovo 2 was discovered in 1991. This settlement is located near the Puxxi yurts of one Khanty family, so the archaeological site was named after their surname – Kayukov. Geographically, the object is located in the taiga zone of the West Siberian plain, on the watershed of the upper reaches of the Bolsky Salym river and the middle reaches of the Bolsky Yugan river (left tributaries of the Ob river). Currently this territory refers to the Nefteyugansk region of Khanty-Mansi Autonomous Okrug-Ugra in Russia. Initia-lly, on the surface the ruins of Kayuko 2 site looked like the remains of five indentations (pits) – grand central, linked by

Reconstructing Hunter-Gatherer Paleoecology at a More Local Scale: the Langmahdhalde Faunal Assemblage as a Case Study

Gillian Wong (University of Tuebingen), PhD student
Co-authors: Dorothée G. Drucker1, Britt M. Starkovich1,2, Nicholas J. Conard1,3
1 Senckenberg Centre for Human Evolution and Palaeoenvironment at der Universität Tübingen, Germany
2 Eberhard-Karls-Universität Tübingen, Institut für Naturwissenschaftliche Archäologie
3 Eberhard-Karls-Universität Tübingen, Ur- und Frühgeschichte und Archäologie des Mittelalters

Germany has a long research history in late Upper Paleolithic human ecology, including regional-scale landscape use interpretations and paleoenvironmental reconstructions. In the Swabian Jura of southwest Germany, research has demonstrated that Upper Paleolithic hunter-gatherers used different local environments, specifically, the several river valleys in the region, in different ways. Intuitively, this is not surprising considering the variation in topography and local environments between each of these river valleys. To date, though, the resolution of archaeological data has very rarely allowed researchers to reconstruct things like human settlement patterns and landscape use at a scale smaller than the “Swabian Jura” or “southwest Germany,” despite the fact that hunter-gatherer mobility strategies likely depended, at least in part, on local-scale environmental conditions. We use the Magdalenian faunal assemblage from Langmahdhalde, a rockshelter in the Lone Valley of the Swabian Jura as a case study for evaluating human paleoecology at the local, as opposed to regional, scale. To do so, we use three methods: traditional zooarchaeology, stable isotopes on bone collagen, and microfaunal analysis. We use traditional zooarchaeological analysis to interpret human behavior and stable isotope analysis to evaluate the niches of the large ungulates exploited by humans: horse (Equus ferus), reindeer (Rangifer tarandus), and red deer (Cervus elaphus). Lastly, we use the microfaunal assemblage, coupled with the stable isotope results, to reconstruct environmental conditions. Our results allow us to discuss how this level of faunal analysis can be used to understand the local ecological context of Magdalenian hunter-gatherers in the Lone Valley of the Swabian Jura and how it may have influenced their decisions regarding landscape use. With this scale of data, we argue that interpretations of landscape use and settlement patterns can move beyond purely environmental explanations.

Abundance and seasonality – Untangling the organization of space among the mid-Holocene estuary populations of NW Finland

Satu Koivisto (University of Helsinki, Finland)

literature – it attempts to high-light possible continuations from the Late Pleniglacial into the Lateglacial period.
Approaching cultural meanings to natural spaces in the Mesolithic of Mecklenburg-Vorpommern

**Felicitas Faasch (Universität Hamburg), PhD student**

The PhD-project aims to improve the state of knowledge regarding the Mesolithic in (inland-) north-eastern Germany, because this area has often been neglected in Mesolithic studies. It does so by combining large-scale (macro-region) and small-scale (micro-regions) approaches to achieve an overview of the known sites in the county of Mecklenburg-Vorpommern. Main areas of interest are for example differences between lithic inventories as indicators for site variation and the reasons behind those variances. At the macro-scale the distribution of know sites has been analysed. Questions regarding the importance of differences between the natural spaces in the working area arise. These differences can be quite marked in Mecklenburg-Vorpommern with its coastlines, its uneven distribution of lakes and diverse river systems. The latter are particularly interesting, since river systems are not only significant concerning the availability of resources but can be important land marks in an otherwise fairly homogeneous environment, as is common in parts of southwestern Mecklenburg for example. Regions which are extensively studied through prospection of their surface finds prove interesting for analysing Mesolithic settlement systems. Varied preferences in the location of settlements between chronologically different sites can be indicators for changes in the relationship to the (likewise changing) environment and in land use. These changes depend on natural resources, but their importance for social contacts should be kept in mind. Although surface scatters hold limited potential for interpreting the composition of singular sites the ongoing project shows opportunities for integrating clusters of these sites in confined natural spaces into the studies of early Holocene settlement systems – and the social aspects connected to them – in north-eastern Germany.

Ahrensburgian and Swiderian tanged points as indicators of a far reaching social network?

**Katja Winkler (CAU Kiel/GSHDL)**

During the Younger Dryas and the beginning of the Preboreal the north European lowland was settled by forager societies defined as the Ahrensburgian and the Swiderian, which belong to the Tanged Point Technocomplex. The principal visible difference between the Ahrensburgian and Swiderian consists of tanged points without a ventrally retouched tang in the western part (the Ahrensburgian) and points with a ventrally retouched tang in the eastern part (Swiderian/Masovian). It is well known, that each type occurs far into the associated territory of the other. At many sites, the different types occur together. This is especially true for the area between the middle Elbe and the upper Warta river. The considerable technological and typological similarities as well as the frequent appearance and distribution of the different tanged point types are raising numerous questions concerning possible interaction, information networks and spatial range of the Ahrensburgian and Swiderian as well...
about cultural identi-ties. The talk will discuss this issues by the results of technological studies of the core-reduc-tion process on flint artefacts as well as morphological-typo-logical studies on Ahrensburgian and Swiderian tanged points and the distribution of the different tanged point types in the area around the middle Oder river.

Mobility and land use during the Mesolithic in southern Scandinavia
Mathilda Kjällquist (National Historical Museums)
Co-authors: Lars Larsson, Lund University; Adam Boethius, Lund University

Mobility among ancient foragers is a pertinent research field and has, over the years, inte-rested a large number of scholars. Research concerning ancient mobility has tradi-tionally used archaeological methods, such as cultural specific objects and technolo-gical traits, but has since the 1980s also involved the analysis of strontium isotope ratios. Ancient forager mobility has also been examined and recently stone technology and Sr isotope ratios have been studied to facilitate interpretations of Early Mesolithic forager mobility and networks. However, most of the research using Sr isotope ratios has been done using bulk sampling methods, which gives great information regarding average values and thus where the individual has spent most of his/her time during the forming of the teeth, but not high-resolution data of specific whereabouts during the formation of each specific incremental growth line. Recently, new evidence has been presented indicating an emerging territoriality among foragers in southern Scandi-navia from the Early Mesolithic period and onwards. A territorial division of the Early Holocene landscape will have drastic implications for how mobility among these people can be under-stood and it is imperative that new strontium examina-tions study this. However, the study of forager mobility, within a context of territorial behaviour, requires a much higher data reso-lution than can be provided from bulk Sr studies. If considering what is known ethnographic from territorial foragers it is appar-ent that families and different societal groups had a pro-nounced territorial mobility, i.e. a mobility within the groups territory to facilitate different resource exploitations. This type of mobility has also been suggested among Early Mesolithic populations. The humans from Norje Sunnansund (an Early Mesolithic settlement from southern Sweden) have been suggested to have lived sedentary on a lakeside settlement close to the Baltic Sea. The evidence from the osteological material indicates that the humans lived sedentary on the site but ventured out to sea during winter to hunt seals and inland during summer to exploit big game resources. A recent study on bulk Sr isotope ratios on the human teeth from the site also indicates a limited mobility, but with large networks that enable raw material procurement and exchange. During the Late Mesolithic period evidence of territori-ality is further strengthened by e.g. territorial displays through burial customs, which have been considered as good

evidence of territoriality and social complexity among foragers. Consequently, it is of interest to compare the strontium values from two different settle-ments, one Early (Norje Sunnansund) and one Late (Skateholm) Mesolithic, to further inter-pret the mobility signals and to better decipher how the suggested territories were construc-ted. Here we will investigate logistical mobility among ancient foragers from southern Scandi-navia. By analysing Sr isotope ratios on specific incremental growth-lines on human teeth from one Early and one Late Mesolithic archaeological site, where the humans have previously shown affiliations to the area they were found in, we wish to study territorial mobility. By relating high-resolution data, from human teeth to that of different animals, found in refuse as well as beads, we wish to study group territory and areas of resource procurement to in-vesigate forager territoriality, mobility and network in ancient landscapes.

Mapping the social landscape of the Early Holocene settlement of Kerkhove-Stuw (BE)
Hans Vandendriessche (Ghent University)
Co-authors: Colas Guéret1, Joris Sergeant1, Annelies Storme1, Frédéric Cruz1, Luc Alle-means2, Kim Aluwé3, Wim Van Neer4, Philippe Crombé4.

At the transition from the Early to the Middle Mesolithic, two profound changes occur in the lithic assemblages of the Rhine-Meuse-Scheldt area. At the one hand, hunting equipment changed radically around 9.3 cal BP with the replacement of steeply retouched microliths by invasively retouched points and small backed bladelets. On the other hand, this typotechno-logical change is accompanied by a shift in raw material procurement. The use of Wommersom quartzite intensifies and its distribution expands in western direction, covering the entire Scheldt basin (Crombé 2018). As both these changes operate on a regional scale, they are believed to reflect diverse and complex socio-cultural phenomena involving transformations of the territorial ranges and the social boundary defence systems of one or more hunter-ga-therer groups. Although the circumstances triggering these regional changes are not straight-forward to interpret, some of these probably constitute a response to major environmental changes occurring during the late Boreal, such as the inundation of the North Sea basin and the reduced availability of freshwater resources in lowland Flanders at a time when fluvial dynamics came to a standstill and the forest canopy became more and more dense (Crombé 2018, in press). At Kerkhove-Stuw, a wetland-site in the Upper-Scheldt basin, recent excavations yielded 17 artefact loci comprised of both Early and Middle Mesolithic contexts, thus pro-viding the perfect opportunity to evaluate the impact of these regional changes of the “social landscape” on an inter- and intrasite
Where was home? Inter-spatial land use by Late Quaternary hunter-gatherer populations in the central Narmada basin, India

Nupur Tiwari (Indian Institute of Science Education & Research, Mohali, Punjab, India)

Research carried out over the last four years (2015-2018) in two districts – Hoshangabad and Sehore - of Madhya Pradesh (central India) yielded a large number of microlithic sites in open air contexts (the author’s doctoral work). These sites were found in the Vindhyan and Gond-wana foothills, and Narmada floodplains (north and south of the river Narmada, respectively). The presence of abundant rock shelters at near most of the open air sites suggests dynamic and intense land use patterns. The distance between the rock shelters and spatially associated open-air sites is variable. Many of these rock shelters are adorned with rock art of various styles and designs and use of different pigments. The landscape movement of the hunter-gatherer populations is evident through a large number of microlithic occurrences found. This distribution also signifies regular mobility to acquire fine-grained raw materials for tool manufacture. The preliminary technological analyses of the microlithic assemblages demonstrate a high assortment of debitage or debris that is a by-product of prominent manufacturing behaviour. The open-air areas must have been used as manufacturing locations and rock shelters for other functional and behavioural purposes. This dynamic land use dichotomy in the Late Quaternary period of the central Narmada Basin shows continuous movement on the lands-cape for tool manufacture, raw material and tool transport, and associated subsistence behav-iours. The role of both spaces has a significant function of its own, which is best understood through an inter-site analysis including artefact density, scatter sizes, contextual data, and technological attributes. Using all these different parameters, I aim to reconstruct a picture of habitation and mobility patterns amongst these populations.

POSTER SESSION: The material culture of Kayukovo 2 settlement of the early Neolithic in the context of hu-man resettlement in the North of Western Siberia

Ekaterina Girchenko (Institute of Archaeology and Ethnography SB RAS (Novosibirsk, Russia))
Co-authors: Oleg Kardash, Institute for the Archaeology of the North (Nefteyugansk, Russia); Georgii Vizgalov, Surgut State University/ Institute of Humanities and Sport (Surgut, Russia); Nataliya Chair-kina, Institute of History and Archaeology, Ural Branch of RAS (Ekaterinburg, Russia), Ekaterina Dubovtseva, Ural Federal University (Ekaterinburg, Russia).

From the early Neolithic (the VII-VI mill. BC) a great amount of settlements appeared in the North of the West Siberian Plain and this number did not decrease until the Middle Ages, which means the formation of a stable population on this territory. This investigation re-presents the material culture of one of the early Neolithic archaeo-logical sites – Kayukovo 2, located in the Nefteyugansk region of the Khanty-Mansi Autonomous Okrug - Ugra. This sett-lement is characterized by many original features, in particular, by the complex architectural and planning organization of space and original ceramics and stone tools of a specific shape. These characteristics are the basis for the uncovering of a new archaeological culture. Accord-ing to radiocarbon analysis, the settlement functioned at the first half of the 6th mill. BC. It was discovered in 1991, was investigated in 1999–2002, and in 2018 the excavations were continued by Russian-German expedition. Kayukovo 2 is a single-layer archaeological site that existed for a short uninterrupted period of time. The cultural layer extends beyond the living zone and is saturated with artifacts, including tools, which indicates the use of the periphery for economic activity. The collection consists of 1170 artifacts; mostly they are fragments of ceramic vessels. The main typological group: spherocentric vessels with a wide open neck and a cylindrical flat bottom. The rim is slightly profiled, the walls are thick, characterized by a loose structure. During the investigations, we have found vessels of atypical shape, but iden-tical ornament – these are pots with a pointed and rounded bottom. All flat bottoms are or-namented, as it seems, by symbolic images, the disclosure of the semantics of which is likely to make it possible to accurately determine the origins of the population who left this archaeo-logical site. Often such
bottoms do not find the corresponding fragments of the hollow body or neck, perhaps the bottoms due to the symbols applied, for example, a solar cross in a circle, were kept even after the vessel was broken. Ornamentation often covers the entire outer surface of the vessel, these are small depressions, nail impressions, repeating rows of receding or splittted rods, prints of toothed comb stamps, etc., arranged vertically, horizontally, or as “fish scales”. A special finding is a fragment of a vessel rim with a vertical paste in the form of a “snake”. Some vessels were painted with ocher. Other ornamental compositions are widely spread in Siberia and can find analogies in the Neolithic of Western Asia on painted ceramics. Also fragments of ceramic sharpening stones (polishers) and volumetric sculptures, presumably of birds, were found. There are not many stone tools, but they represent the steady types characteristic mainly for this archaeological site. These are adzes with a longitudinal gutter and sickle-shaped knives made of rare for the North types of stone by grinding. Forms are extremely specific and different from the ones that were used previously. The special form and ornamentation of vessels and tools, specific architecture are obviously connected with the resettlement from the southern territories to the North of Western Siberia. A number of features suggest a probable connection with the cultures of Western Asia, but the directions of possible migration flows require further research.

2 Transformation as a human response to climate and environmental change?

Thursday March 14th, Room 209

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Transformation as a human response to climate and environmental change?

Keynote speaker: Mikhail Zhilin (Institute of Archaeology of Russian Academy of Sciences)

The Weichselian Lateglacial of the Northern Hemisphere represents a period of multiple, often rapid, and sometimes substantial climatic changes. In Northern Eurasia, these induced environmental changes that correspond to a succession of tundra/steppe, light forest, and again tundra/steppe ecotopes with regional variations. Since the beginning of the Holocene, forest environments have been spreading over large areas. How this succession correlates exactly to the succession of the Late Upper and Final Palaeolithic traditions between the Paris Basin and the eastern Baltic, remains a matter of debate. In general, these traditions are assumed to represent the result of adaptation to changing environments. This allows a contribution to the on-going debate about human responses to climate change that can be addressed from a deep-history approach. In particular, hunter-gatherer societies have to adapt their way of life to their natural surroundings. For instance, hunting strategies depend on visibility and, hence, vegetation cover that again partially influences the available prey and its behaviour. Likewise gathering and fishing depend on seasonal availability. Thus, the annual rounds and/or the mobility patterns had to be adjusted to these time windows, possibly resulting in altered settlement systems and a different spatiality. Yet, how people did this and whether they really exploited the full potential of a landscape remained a choice that might have been influenced by cultural traditions, beliefs, and norms. Perhaps, the experience of significant fluctuations also gave rise to inert behavioural complexes that helped to remain resilient over shorter periods of climate change.

In this sense, hunter-gatherers and their landscape form an example of complex adaptive systems or networks during the Weichselian Lateglacial.

In this session, we therefore aim to investigate these transformative processes: Does combined palaeoenvironmental and archaeological data support these transformations as adaptations? What was the reaction of hunter-gatherers to changing climate and environmental conditions? How and to what extent did these factors influence their behaviour? Is there evidence for alternative explanations of archaeological transformations from the onset of the Lateglacial Interstadial to the transition to the Postglacial? Papers exploring these questions on Lateglacial palaeoarchives in northern Eurasia are particularly welcome in this session.

Demographic developments and issues of scales: Human population estimates for Europe and western Germany during the Late Pleistocene and the earliest

Birgit Gehlen (University of Cologne)
Co-authors: Isabell Schmidt, Andreas Zimmermann

Demographic developments and issues of scales: Human population estimates for Europe and western Germany during the Late Pleistocene and the earliest Holocene

Birgit Gehlen, Isabell Schmidt, Andreas Zimmermann The present study investigates the demographic developments during the Late and Final Palaeolithic and Mesolithic (Bølling/Allerød – Younger Dryas – Preboreal), dating roughly between 14.2 and 10.6 ka cal BP with special emphasis on the Pleistocene-Holocene transition. The demographic estimates were obtained using the “Co-logne Protocol” approach, adjusted to hunter-gatherer context and already being applied to several periods of the Upper Palaeolithic. Our research (project D4 and E1, CRC 806, University of Cologne) provides site-distribution and demographic data at different scales and resolutions: for Late Pleistocene periods at a pan-European scale, and for the Mesolithic data at a scale comprising the northern German Rhineland and from Westphalia. We will stress issues on scales and data quality in our approach, possible sources of biases and errors, and present our findings on diachronic developments of human populations for the period under investigation. Dimensions and distributions of major settlement clusters are contextualized with climatic factors and paleogeography, and potential changes in landuse will be discussed.

Lateglacial environments inferred from zooarchaeological assemblages

Hazel Reade (University College London)
Co-authors: Jennifer Tripp (University College London), Kerry Sayle (Scottish Universities En-vironmental Research Centre), Tom Higham (University of Oxford), Sophy Charlton (Natural History Museum, London), Ian Barnes (Natural History Museum, London), Rhiannon Stevens (University College London)
While the general pattern of Lateglacial climatic change and subsequent environmental developments are relatively well known for northern Europe, it is widely acknowledged that these processes were asynchronous in their timing and precise manifestations. Regional differences in topography, distance from the coast, proximity to the ice sheet margins, soil structure, and hydrological dynamics produced local scale responses to global scale events. Many questions therefore remain about the local landscapes Late Upper and Final Palaeolithic communities would have experienced and utilised, and to what extent the natural environment influenced the choices and cultural traditions represented in the archaeological records of the region. Here we present new environmental data directly derived from zooarchaeological assemblages from northern Europe. We consider the data in relation to existing palaeoenvironmental archives and explore patterns of environmental and ecological change in comparison to past-terns of change observed in the archaeological record. We discuss the complexities of producing integrated environmental interpretations that are of a spatial and temporal scale relevant to exploring the relationship between Late Upper and Final Palaeolithic populations and their environment.

Climate and environmental change at the border of Pleistocene and Holocene on the Upper Volga and human response to it.

Keynote lecture: Mikhail Zhilin (Institute of Archaeology of Russian Academy of Sciences)

The proposed paper is focused on climate and environmental changes in the center of Euro-pean Russia – the basin of the Upper Volga at the border of Pleistocene and Holocene and human response to it. Existing data show that cold and dry climate of the Younger Dryas gradu-ally became more humid and warm by the end of this period. Sparse forests replaced perigla-cial landscapes, but open landscapes were widespread over the area under study. Reindeer and Bison Priscus were recognized from faunal remains of the bottom layer of Zolotoruchye 1, dated to 10240 BP. Substantial increase of warmth is observed in the very beginning of the Preboreal period. Dense taiga forests were spread in river valleys and lake depressions while open landscapes were preserved at watersheds. Faunal remains from Early Mesolithic sites show dominance of forest species with elk and beaver being the main hunted mammals. Reindeer is absent in the bottom layer of Stanovoye 4, and makes less than 1% of mammalian bones in the bottom layer of Ivanovskoye 7. Not a single bovine bone was found at Mesolithic sites of the Upper Volga. Final Palaeolithic population had to adapt to new environment. We observe development of traditions of the bottom layer of Zolotoruchye 1 and a number of important innovations at earliest sites of the Butovo culture. Rapid development of bone in-dustry, first of all hunting weapons including composite slotted points and daggers with inserts - microblades is characteristic. Flint tanged points with ventral retouch emerge. Production of microblades and probably larger blades by pressure technique is important. It was accompa-nyed by development of wood cutting tools needed for living in forest surroundings. Antler axe and adze blades and perforated sockets for their mounting emerge at the very beginning of the Mesolithic together with partly ground slate, chert and silicized limestone axe and adze blades. Various other bone and antler artifacts supplement inventory of early sites of this cul-ture. Main features of the Butovo culture were worked out in the first half of the Preboreal period as adaptation to new environment and survived with minor innovations for over a mil-lennium. Toolkit of the Ienevo culture, on the contrary does not show any significant changes from the end of the Younger Dryas through Preboreal period. The only significant innovation was introduction of trapezes, but their number is much less than the amount of tanged and oblique-bladed arrowheads. During the first half of the Preboreal period population of this culture lived in the same surroundings as people of the Butovo culture, and hunted same fo-rest mammals with elk being the most important. But hunting weapons and many other fea-tures were different. The present research showed that population of the Upper Volga region had to adapt to new environment. This process took about 300 years, and if we count in ge-nerations of hunter gatherers it was rather slow, evolutionary, and no traces of any catastro-phe or crisis can be observed. Environmental changes were the same in the region, but ways of adaptation of different groups in the same region were determined mainly by cultural tra-ditions.

Surviving through the latest Bølling, Allerød and the beginning of the Younger Dryas: Federmesser groups on the North European Plain

Iwona Sobkowiak-Tabaka (Institute of Archaeology and Ethnology Polish Academy of Sciences)

Co-author: Aleksandr Diachenko (Institute of Archaeology of the National Ukrainian Academy of Sciences)

For a long time, hunter-gatherers had been perceived as communities fairly uniform and lar-gely dependent upon the environmental conditions. Even if these assumptions are not en-counter in the literature anymore, still the tendency to looking for reasons of cultural changes in transformations of economic systems is observed. This problem is especially valid in refers to Federmesser groups, inhabiting the vast area of North European Plain during almost entire Late Glacial and witnessed numerous climatic and environmental shifts. In order to explore this issue in details we analyzed the dynamics of Federmesser groups regarding to the possi-bility and degree of influence of environmental factors on their subsistence strategies, mobi-lity and cultural behavior. Considering the distribution of radiocarbon dates combined into chrono-
From function to socio-economical organization. New research on the late Azilian site of Le Closeau and implication on the Azilianisation process in the center of the Paris basin

**Mevel Ludovic** (CNRS, UMR 7041 Nanterre)
**Co-Authors:** Jérémy Jacquier (UMR 6566, CreAAH, Rennes), Pierre Bodu (CNRS, UMR 7041, ArScAn, Ethnologie préhistorique)

Le Closeau (Rueil-Malmaison, Hauts-de-Seine, France) yielded 79 loci occupied by Azilian groups between the end of the Bølling interstadial and the beginning of the Younger Dryas. A majority of the concentrations are contemporaneous with the Allerød interstadial. They are characterised by an expeditive “chaîne opératoire” for the lithic production, the scarcity of retouched tools and their typological monotony (often dominated by curved backed points). The numerous (but not exhaustive) reffittings carried out on the locus 36 demonstrate that this locus did not function as a simple lithic workshop where lithic products would have been strictly used outside the knapping area. Indeed, if all the produced blanks were not intended to be used on site (absence of blanks demonstrated through reffittings), the majority of the blanks were abandoned in the unit neither been transformed into a tool. Also, why bring such a quantity of flint (over 42 kg) inside this unit? The Azilian did not settle directly on the flint outcrops, but a few hundred meters away, suggesting the transportation of blocks to this place for their activity. The techno-economical data and the results of the functional analyses shed new light on the functioning of locus 36 and a few others (locc 20, 26, 41). They allow to question the evolutionary trajectories of the last Azilian societies. Indeed, the functional analyses have shown the presence of unretouched tools, impossible to determine without this kind of analysis. These tools were mainly used for processing plant/wooden materials. However, un-less we see a difficulty in predetermining the desired morphologies, these scant tools appa-rently chosen a posteriori for certain morphological features, it cannot explain alone the a-bundance of the flint exploited. While the projectile points production may have been an im-portant objective of the knappers, the flexibility of the Azilians in the selection of blanks makes it difficult to quantify this production. Although the absence of this type of analysis in the contemporary context of Allerød confers on these results a novelty for the Late Azilian in NW Europe, they encourage us to especially question the relation between the apparent functio-nal specialisation of these concentrations and the weakly invested character of the lithic “chaîne opératoire”. These expeditive lithic productions have often been perceived as the wit-ness of a final episode of the Azilian in the Paris basin. But, on the contrary, should we not rather perceive them as specialised functional units integrated in a larger network? A larger network which, at Le Closeau, is still difficult to define in the form of a camp? Other concent-rations with the same technological signature have provided fairly similar results on the func-tional level. Also, we question the relation between these loci with expeditive debitage and specific vocation, with concentrations presenting a more important blade component, located in the southern part of the site (locc 14, 18, 19, 41). Rather than perceiving technical variability as the maker of a diachrony during the Azilian can we not rather consider it as the result of functional variability? This paper aims to present the details of the first results acquired and to considerate the technical and chronological segmentation of the Azilian of northern France and the economical organisation of these Azilian societies.

From shoulder to tang – Do Havelte points represent an adaptation to environmental change?

**Mara-Julia Weber** (Centre for Baltic and Scandinavian Archaeology)

Havelte tanged points represent an anomaly in the succession from Magdalenian or Hamburgian shouldered or angle-backed points to the curve-backed points of the Azilian or Federmesser-Gruppen. Since they occur on the western and northern edge of the distribution area of the Hamburgian in a developed phase of the Meiodorf interstadial (GI-1e), the question arises if they reflect an adaptation of the Hamburgian hunting equipment or hunting circum-stances to a changing environment. It has been suggested that the increase in vegetation den-sity could be at the origin of this new type of lithic projectile implement. We will therefore investigate the evidence of botanical studies for a development of the vegetation cover during GI-1e between the Netherlands and Denmark but also look for other characteristics in the natural environment these areas have in common during the Early Lateglacial Interstadial. In a second step, we will discuss alternative explanations for the occurrence of the Havelte tan-ged points, such as a technical evolution or social reasons.
**SESSION 2**

**Palaeolithic and mesolithic flint assemblages from the Baruthian Ice Marginal Valley und Valley of the Nuthe-River**

Stefan Pratsch (Landkreis Teltow-Fläming, Sachbearbeiter Archäologie)


**The reinvestigation of Aukštumala peat bog: a Swiderian habitation site on a former lake island on the coastal area of Lithuania**

Tomass Rimkus (Klaipėda University, Institute of Baltic region history and archaeology)

Co-authors: Algirdas Girininkas, Miglė Stančikaitė, Jolita Petkuvienė, Linas Daugnora

Aukštumala bog is one of the largest wetlands with peat deposits in the Nemunas river delta, in the territory of today’s Lithuania coastal area. Since the 19th century this place was not only the main surveys subject for European bog researchers but as well as for German ar-chaeologists. During the 20th century the bog has undergone multiple drainage works, most of it was connected to commercial peat exploitation. Only in 2004 the first reveals of the Stone Age habitation were discovered in this area, once the archaeological research was restarted. The site was found on the fluvioglacial island of the former lake, on its western and eastern shores, with the flints representing the final stage of the Palaeolithic – Early Mesolithic. About several years ago, some technological investigations on the previous archaeological material went wrong and was misleadingly interpreted, however, in 2018 in the frameworks of the ongoing research project „Mesolithic-Neolithic and the Baltic Sea communities. Ancient coasts and settlements under the Sea and in the present coastal area“, the reinvestigations were launched in Aukštumala. The area of 50 m2 was investigated and new sites were discovered during the surveys. All data shows that this island was occupied by people who used the willow leaf-shaped points technology of the Swiderian culture.

In addition to the excavations, palae-obotanical, geochemical, AMS dating, microwear and residues analysis of flints were used to explore habitation and human interaction within the environments of the palaeolake and is-land with its neighbour landscape. Current data shows that this place is the earliest Stone Age site on the current coast of Lithuania and one of the few with possible organic remains buried in lake sediments.
SESSION 3

Starting where they stopped to rest:
Transformation of Stone Age burial practices between the Baltic and the Urals

Wednesday March 13th & Thursday March 14th, Room 204/207
Session organizers: Anastasia Khramtsova, Harald Lübke, Henny Piezonka

WED 08:30 Introduction
08:40 The long and short of it: the temporality of burial in the large cemeteries of Lake Baikal and northeast Europe
Keynote lecture: Rick Schulting (School of Archaeology, University of Oxford)
09:10 Tradition or transition? The Mesolithic cemetery of Groß Fredenwalde and the first farmers in NE-Germany
Andreas Kotula et al. (Niedersächsisches Landesamt für Denkmalpflege)
09:30 The Zvejnieki burial ground over the millennia
John Meadows (Centre for Baltic and Scandinavian Archaeology (ZBSA)
09:50 Discussion slot

10:30 Late Mesolithic - Early Neolithic Burials in the North of West Siberia
Andrey Pogodin (Research and Analytical Center of Problems for Preservation of Cultural and Natural Heritage "AV COM"
10:50 Trans-Ural Neolithic-Eneolithic burial complexes
Nataliia Chairkina (Institute of History and Archaeology, Ural Branch of the RAS (Russia, Ekaterinburg))

11:10 Filling the old gaps: rediscovery of the Early Neolithic burials in the territory of the East European Plain forest zone
Ekaterina Kashina et al. (State Historical Museum, Moscow)
11:40 Emerging diversity. Hunter-gatherer mortuary practices in Eastern Baltic 7th to 3rd millennia cal. BC
Mari Tõrv (Department of Archaeology, Institute of History and Archaeology, University of Tartu)

13:30 Finnish Stone Age hunter-gatherer burials and the material culture death
Marja Ahola (University of Helsinki)
13:50 New burials from the sphere of Estonian Corded Ware
Keriko Nordqvist et al. (University of Helsinki)
Adomas Butrimas et al. (Vilnius Academy of Arts Institute of Art Research)
14:30 Discussion slot

THU 08:30 The Riņņukalns shell midden, Latvia: Research history 1873 – 2016
08:30 Harald Lübke et al. (Centre for Baltic and Scandinavian Archaeology (ZBSA))
08:50 The Rinnukalns shell midden, Latvia: the new excavation and discovery of further burials
Valdis Berzins (Centre for Baltic and Scandinavian Archaeology; Institute of Latvian History, University of Latvia)
09:10 Anthropological examination of the two new Stone Age burials 2017/01 and 2018/01 at Riņņukalns, Latvia
9:10-9:30 Ute Brinker et al. (Centre for Baltic and Scandinavian Archaeology)
09:30 Perched on the edge of eternity: Fish and funerary rites at Riņņukalns, Latvia
Kenneth Ritchie et al. (Centre for Baltic and Scandinavian Archaeology (ZBSA))
09:50 Discussion slot

10:30 What’s left after death... Taphonomic processes within a mesolithic burial from the Oder Valley and their archaeological interpretation
Maha Ismail-Weber (Brandenburgisches Landesamt für Denkmalpflege und Archäologisches Landesmuseum)
SESSION 3

10:50 Microarchaeological analysis of soil samples - a new method to study the uses of birds in Mesolithic burial practices
Tuija Kirkinen (Osteoarchaeological Research Laboratory, Stockholm University)

11:10 Stone Age Companions: Human-animal relationship expressions at hunter-gatherer cemeteries in the Eastern Baltic and Central Russia
Aija Macane (Gothenburg University)

11:30 Dating prehistoric burials in the north-east forest zone
John Meadows (Centre for Baltic and Scandinavian Archaeology (ZBSA) and Leibniz-Labor für Altersbestimmung und Isotopenforschung, Kiel University)

11:50 Discussion slot

13:30 Kits for afterlife. The evolution of burial assemblages from the Mesolithic to the Early Metal Age between the Baltic and the Urals
Anastasia Khramtsova (Graduate School “Human Development in Landscapes”, Kiel University)

13:50 “Ritualized” technology? blade arrowheads in the Late Mesolithic contexts of Karelia and Karelian Isthmus
Dmitriy Gerasimov (Peter the Great Museum of Anthropology and Ethnography / Kunstka-mera/ Rus.Acad. Sci.)

14:10 Burials with weaponry in Neolithic-Eneolithic burial grounds of the Upper Don River region
Elizaveta Yurkina, Roman Smolyaninov (Lipets State Pedagogical University, Russia)

14:30 Life and death on the rapids (Stone Age Cemeteries of the Lower Dnieper region)
Natalia Mykhailova, Olexandr Yanovich (Institute of archaeology of National Academy of Sciences of Ukraine)

14:50 Corded Ware Warriorhood – a „pan-European” monolith or a set of local traditions?
Rafal Skrzyniecki, Mateusz Cwalinski (University of Adam Mickiewicz in Poznan)

15:10 Discussion slot & conclusions

3 ABSTRACTS

Starting where they stopped to rest: Transformation of Stone Age burial practices between the Baltic and the Urals

Keynote speakers: Rick Schulting (School of Archaeology, University of Oxford); Ekaterina Kashina (State Historical Museum, Moscow)

Session organizers: A. Khramtsova, H. Lübke, H. Piezonka)

Burial practices, as a type of ritual activity, consist of many steps, represented archaeologically by different types of burial objects and features, which quite often reflect and clarify cultural distinctions. From this standpoint, the Northeast European forest zone from the Baltic to the Urals is of great interest in the Early and Mid-Holocene. Besides a considerable cultural diversity connected to hunter-gatherer communities, the territory is characterized by a generally favorable preservation of organic materials, including human skeletal remains. Nevertheless, the area has remained virtually a terra incognita from a comparative perspective, assessing cultural links and chronological trajectories between Later Stone Age burial sites on a supraregional scale. It is of particular interest also from a Western perspective, due to the sequential, and regionally very diverse appearance of “Neolithic” traits such as first pottery and early agriculture within this Eastern hunter-gatherer sphere. With respect to the application of a modern multi-proxy spectrum of methods to the information and materials from previously excavated sites, targeted analyses of existing finds as well as new excavations at several key sites are currently changing this picture.

All these factors and developments shape our current understanding of the cultural processes in the above-mentioned time and space. Therefore, the session provides a forum for scholars who are working with materials from different burial sites. Based on these contributions, variations, discrepancies, and similarities should become transparent across the outlined area. This will lead to a better understanding of the transformation of burial practices as well as the ritual sphere and its role in the lifeways of the communities.

Crucial problems to be presented and discussed may be divided into the three topics:
1. New data, results of recent excavations, application of new, interdisciplinary cutting-edge desktop and field methods in burial research;
2. The structure of burial sites, the significance and interconnection of burial objects;
3. The socio-cultural interactions between hunter-gatherer communities as well as between forager and farmer societies and how they can be traced on the basis of archaeological information from burial sites.
A thorough and multi-dimensional investigation of mortuary rites within the session will bring us closer to the understanding of both the evolution of mortuary practices, and the nature of burial rites that played a role in the late forager societies of the north-east European forest zone within their wider Eurasian frame. We cordially invite experts and young specialists in the field of burial archaeology as well as the archaeology of hunter-gatherers to contact us directly with a brief abstract of the proposed topic according to the issues to be discussed within the session.

The long and short of it: the temporality of burial in the large cemeteries of Lake Baikal and northeast Europe

**Keynote lecture: Rick Schulting (School of Archaeology, University of Oxford)**

The systematic use of AMS radiocarbon dating directly on human bone from Stone Age burials is providing the potential – once reservoir effects are taken into account – for increasingly high precision chronologies. Cemeteries in particular provide excellent opportunities to explore the temporality of burial. Recent work in the Baikal region of southern Siberia demonstrates the considerable variability in the temporal density of burials made at sites including Shamanitsa II, Lokomotiv, Khužir-Nuże XIV and Fofanovo. These results may be compared with those from the large Stone Age cemeteries of Zvejnieki and Olenii Ostrov in northeast Europe. Such an exercise clearly demonstrates the very different histories of these sites, even though the end result may look superficially similar, i.e., a large burial ground with a variety of burial forms and grave offerings, etc. This paper first addresses some of the difficulties encountered in constructing high precision chronologies, before comparing the temporality of Stone Age burials across two regions within the vast expanse of northern Eurasia.

Tradition or transition? The Mesolithic cemetery of Groß Fredenwalde and the first farmers in NE-Germany

**Andreas Kotula (Niedersächsisches Landesamt für Denkmalpflege)**

**Co-Authors: Thomas Terberger, Bettina Jungklaus, Henny Piezonka**

Discovered in 1962, the multiple burial of Groß Fredenwalde in the Uckermark region of northeastern Germany has long been neglected. It was not before the late 1980s that the detec-tion of the Mesolithic burial of Strøby Egede on Zealand, Denmark, raised more attention also on the site, leading to a detailed publication by B. Gramsch and U. Schoknecht in 2003. New research since 2012 has yielded evidence for a unique set of Mesolithic burial traditions, and today Groß Fredenwalde is suggested to be the oldest cemetery in Germany. Most of the graves date to the early Atlantic period and are definitely related to late hunter-gatherers (c. 6,500 to 5,900 calBC). The grave of a young man who was probably buried in an upright position is dated about 1000 years younger (c. 4,900 calBC), indicating that this individual had been living side by side with the early LBK farming communities of the Uckermark. Up until now, at least ten individuals from the site are known, originating from at least five graves in an area only covering a few square meters on top of a morainic hill. It is expected that more graves are preserved on the site, including those covering the period of neolithization. The well preserved human skeletons make the Groß Fredenwalde assemblage one of the most important series of Mesolithic individuals of Central Europe. There are four adult and six infant individuals, among them a baby burial found in 2014. They provide the opportunity to gain new insights in the late Mesolithic population and its lifeways, especially with the health status of children being most sensitive to the living condi-tions. In 2019 a new project financially sup-porteed by the Deutsche Forschungsgemein-schaft starts to further investigate the extension of the burial site. Already by now there is preliminary evidence of at least one more grave. The setting of the cemetery in the landscape is another important aspect which will be addressed by pollen analysis within a novel interdisciplinary approach. The well-preserved skeletons pro-vide excellent conditions for isotope studies to better understand the economic and spatial context of the population, and aDNA-studies will help to characterize the Mesolithic popula-tion before and after the advent of the first farmers in the region. The talk will present the outstanding insights and potentials of research at the Groß Fredenwalde site including the better understanding of the territoriality and mindset of a late hunter-gatherer community witnessing the change of their world.

The Zvejnieki burial ground over the millennia

**John Meadows (Centre for Baltic and Scandinavian Archaeology (ZBSA), Schloss Gottorf, D-24837 Schleswig)**

**Co-author: Dr. Ilga Zagorska (Institute of Latvian History, University of Latvia, Kalpaka bulv. 4, Riga, LV-1050, Latvia)**

The Zvejnieki archaeological complex – a burial ground and two settlement sites, partly con-temporaneous with it, are well known in Stone Age research history. Excavations by F. Zagorski at 1960s and 1970s (Zagorski, 2004), as well as by L. Larsson, I. Zagorska and V. Bērziņš in 2005-09 (Larsson et al, 2017), gave an extraor-dinary rich archaeological and anthropological assemblage, investigated by a wide range of specialists (Back to origin, 2006). Re-search on this material has continued in recent years (L. Nilsson-Stutz, L. Larsson, J. Meadows, I. Zagorska), giving insights into ancient hunters-gatherers’ attitude to their environment, their way of life and mortuary practices over a long period, spanning much of the Mesolithic and Neolithic (approximately 7500-2600 cal BC). To understand the structure and development of
burial ground over the millennia more profoundly, to show continuity or changes in a mortuary practices and world views of ancient people, we will focus on the chronological division of the graves, following earlier studies on radiocarbon freshwater reservoir effects in this material (Meadows et al., 2016, 2018). We will discuss long-term trends in the incidence of burials, their locations, in mortuary practices and associated material culture. As most of the 325 burials have not yet been dated directly, these are still tentative suggestions rather than robust patterns, but our presentation will provide some indication of the potential value of such a rich and continuous archive to understanding Stone Age burials in a Northern European context.

**Late Mesolithic - Early Neolithic Burials in the North of West Siberia**

Andrey Pogodin (Research and Analytical Center of Problems for Preservation of Cultural and Natural Heritage "AV COM")

Co-author: Tatiana Klementjeva (KlementjevaT@yandex.ru, Research and Analytical Center of Problems for Preservation of Cultural and Natural Heritage "AV COM – Heritage", Institute of History and Archaeology, Ural Branch, Russian Academy of Science, Yekaterinburg, Russia)

The study is devoted to the burial practices and mortuary rites adopted by the population of the North of Western Siberia in the Late Mesolithic – Early Neolithic periods (ca. 8200–4200 cal BC). As of 2018, 126 burial sites have been investigated. All of them are located near the Konda tributaries, whose basin covers the south-western part of the northern areas. Several individual burials of the Late Mesolithic period were found right in the ancient encampments. For example, one was discovered under the floor of a dugout shelter in Leushi 9 settlement. It was a rectangular pit with the dimensions of 0.96×0.3×0.2 m, and N-S orientation. A skull of an adult male was buried in it. Based on radiocarbon dating (14C), the burial time was 7590±80 BP. In Satyga XVI burial ground, the ancient cremation burial rites were studied. There were three bone clusters lying at the depth of up to 0.34 m and forming a circle or ovals with the dimensions of 1.6×1.2 m and N-S and SE-SW orientation. Stone and bone artifacts with human cremated bones. 3 burials were excavated in Bolshaya Umytya 100 necropolis.

**Trans-Ural Neolithic-Eneolithic burial complexes**

Nataliia Chairkina (Institute of History and Archaeology, Ural Branch of the RAS (Russia, Eko-terinburg))

The burial complexes of the Neolithic-Eneolithic located in the Trans-Ural, in the forest-steppe zone of the Lower Tobol region; and in the taiga zone of the North of Western Siberia despite certain variations had a number of characteristics in common, which, in all probability, were associated with the cultural specifics of the societies which left those interments. Spatial lo-calization Single and joint interments of the Trans-Ural region were located in the territory of or outside the settlements area, on ritual sites, in rock shelters and caves. The burial sites were positioned on lake islands and river banks. The surface structures were not numerous and consisted of flooring, stone piles or intentionally arranged stones beds; and a stone “box”. The shape of the graves was oval or sub-rectangular, rarely boat-shaped and, same as in case of the grave size, any variations were insignificant. Only several interments had significantly larger dimensions or pit depth. The predominant orientations of the grave pits were NE-SW, NW-SE; the bodies orientation was heads to the NE and NW with some bias to the W or the E. Another characteristic attribute was a partial or practically full cremation
Filling the old gaps: rediscovery of the Early Neolithic burials in the territory of the East European Plain forest zone

Keynote lecture: Ekaterina Kashina (State Historical Museum, Moscow)
Co-Authors: Anastasia Khramtsova (Graduate School “Human Development in Landscapes”, Kiel); Kristiina Mannermaa (University of Helsinki, Finland)

Notwithstanding the fact, that over 100 Stone Age single burials and burial sites have been excavated on the extensive territory of the East European Plain, the chronology of hunter-gatherers’ mortuary sites still includes a voluminous hiatus in the form of Early Neolithic buri- als (6th–5th millennia BC). Multiple factors such as the multi-layered character of almost all sites, poor preservation of organic materials, taphonomic processes at some sites, lack of both the burial goods and grave pits’ contours, along with the absence of absolute dating, are the cause of this hiatus. All these issues have substantially complicated the process of identifying the chronological and cultural attribution of graves in this particular period. The given millen-nia are of great research interest from a different perspective, being the era of first ceramics appearance and dissemination all over the forest zone along with the increase of sedentarism and associated population growth. Also, in the beginning of the 5th millennium the general change of ceramic traditions together with the replacement of blade by the flake and the bi-facial technology took place. The explanation of obvious lifestyles shift only in terms of Atlantic climate conditions doesn’t seem ample. These processes could have had some deeper reasons, which might be hidden in ritual life of Early Neolithic communities as well. The results of AMS C14 dating coupled with a new precise analysis of body positioning as well as burial goods, bioarchaeological research, and stratigraphical observations made on the basis of field recordings and published data let us to assume the Early Neolithic age of some burials which used to be treated as more recent graves. Within the talk, we will argue that a combination of different aspects, including grave orientation along the river, seldom but stable occurrence of body prone position with hands under the pelvis as well as more usual extended position on the back, the close arrangement of bones as if a body was tightly wrapped, making of grave pits in intact soil alongside the intentional fragmentation of burial goods, might be considered as the Early Neolithic burials’ indicator. The obtained results will be particularly useful for analysing the material from burial grounds that were used in long time span, searching for potential parallels within the Baltic region, and tracing further the evolution of hunter-gatherers-fishers’ mortuary rites in the territory of the East European Plain. Moreover, these results raise the wider discussion on communication networks in time and space, being presumably the driving force of shifts, reflected so distinctly in the material culture of the Neolithic Eastern European forest zone.

Emerging diversity. Hunter-gatherer mortuary practices in Eastern Baltic 7th to 3rd millen-nia cal. BC

Mari Tõrv (Department of Archaeology, Institute of History and Archaeology, University of Tartu)

Traditionally, hunter-gatherer mortuary rituals are described homogenous with only primary inhumation in the repertoire. Recently, however, different studies have presented more di verse and complex picture regarding the ways of depositing the dead in the Eastern Baltic and beyond. Among others this paper unravels these diverse ways by re-examining old excavation data – both intact skeletons and loose human bones – from present-day Estonia. Mortuary practices were observed through the lens of post-excavational archaethanatology. It is de monstrated that primary inhumation was not the only way of handling the dead among and within hunter-gatherer commu-
nities. On the contrary, a range of practices was present. Does the diversity emerge due to temporal differences as 4 millennia or 160 generations are re-presented in the sample? Do we see variability due to the fact that mortuary practices differed among hunter-gatherer communities? Could the diverse practices still reflect common under-lying values or norms shared by hunter-gatherers in the Eastern Baltic region?

**Finnish Stone Age hunter-gatherer burials and the material culture death**

*Marja Ahola (University of Helsinki)*

Finnish territory lies at the northern fringe of the European boreal zone. Although nearly 200 Mesolithic and Neolithic hunter-gatherer burials have been excavated from this area, the majority is still largely unknown outside the Finnish borders. In contrast with the well-preserved burials of neighboring areas, Finnish Mesolithic and Neolithic hunter-gatherer burials are a challenge for archaeological research because perishable materials – including human remains – are generally not preserved. However, even if the burials lack perishable materials, they nevertheless contain large numbers of burial objects made of unperishable materials. In this presentation, I will give an overview on the Finnish Stone Age hunter-gatherer burials and focus especially on the preserved material culture of death. Aside observing the burial objects from the angles of change and continuation, I will also set my gaze on how and why certain materials and artefact types were used – or not used – in the mortuary practices of these ancient hunter-gatherers.

**New burials from the sphere of Estonian Corded Ware**

*Kerkko Nordqvist (University of Helsinki, Finland)*

Co-authors: Alvar Kriska (University of Tartu, Estonia), Liivi Varul (University of Tallinn, Estonia)

Corded Ware burials have been known in Estonia for more than 100 years. However, most of them have been excavated before the 1950s. The only exception are the two graves investi-gated at the Narva-Jõesuu site (north-eastern Estonia) in 2013–2014. Unfortunately, due to the local soil conditions no bones were preserved. Still, the size of the structures and the unearthed artefacts (battle axes, beakers, an amber pendant, etc.), as well as some tooth enamel found in the graves give grounds to propose that one of the graves was a double burial of an adult and a juvenile, whereas the other one was apparently a singular burial. This prese-tation will introduce these newly-dis-covered burials and explore them in the context of burials known in the area of the so-called Estonian Corded Ware (northern Latvia, Estonia, southern and south-eastern Finland, as well as western Leningrad Oblast in Russia). Furthermore, as the grave goods from Narva-Jõesuu indicate similarities and contacts not only to the south, but rather to the east and south-east, the position of the burials and their material culture on the transitional east-west-axis is also discussed.

**Stone-Age Burials in the Environs of Lake Biržulis. New Data.**

*Adomas Butrimas (Vilnius Academy of Arts Institute of Art Research)*

Co-authors: Marius Irsenas, Tomas Rimkus, Gvidas Slah, John Meadows, Kristiina Mannemaa

The excavations of Donkalnis and Spiginas burial sites in the surroundings of Lake Biržulis in the western part of Lithuania which took place from 1981 to 1986 revealed 17 Mesolithic and Neolithic graves. The materials associated with these excavations were published between 2012 and 2016. The research continue to this day. Twenty-three radiocarbon dates have been established. A use-wear analysis of flint objects found in the graves have been performed. Also, biotechnological analyses of animal teeth from the burials were carried out. The bone material found in Donkalnis grave 1 has been re-evaluated: traces of the bones of a 7.5-8 month fetus have been identified. Genetic analyses of the graves have been carried out. The latest study performed is a micro-archaeological analysis of the ochre from Donkalnis grave 2. All this data contributes greatly to our understanding of the mortuary practices that took place in the surroundings of Lake Biržulis.

**The Rūņņukalns shell midden, Latvia: Research history 1873 – 2016**

*Harald Lübke (Centre for Baltic and Scandinavian Archaeology (ZBSA))*

Co-Authors: Iļga Zagorska², Valdis Bērziņš³, Ute Brinker¹, John Meadows¹,³, Kenneth Ritchie¹, Mudite Rudzīte¹, Ulrich Schmölcke¹

1 Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig-Holstein State Museums Foundation Schloss Gottorf, Schlossinsel 1, D-24837 Schleswig, Germany
2 Institute of Lithuanian History, University of Latvia, Kolpaka bulvaris 4, Riga LV-1050, Latvia
3 Leibniz Laboratory for Radiometric Dating and Stable Isotope Research, Christian-Albrechts-Universität zu Kiel, Max-Büth-Str. 11-13, D-24118 Kiel, Germany
4 Museum of the University of Latvia, Kromvalda bulvaris 4, Riga LV-1010, Latvia

Rūņņukalns, in northern Latvia, is unique in the context of the Baltic Sea region prehistory. Covered and first investigated by Count Carl Georg Sievers in the 1870s, it is the only well-stratified Stone Age shell midden in the East Baltic and one of the few middens formed of freshwater mussel species. The artefacts recovered include ceramics, bone tools and some art objects. Of special importance were at least four human burials, with some bone and stone grave goods, which were found under apparently intact layers of the shell midden, which could be dated to the Neolithic by pottery sherds. Consequently Sievers considered these hu-man remains, in contrast to other early modern burials found in the topsoil, as the first Stone Age graves found in...
the Eastern Baltic. However, this interpretation was contradicted by then leading Baltic prehistorians and the age of the presumed Stone Age graves remained in dispute.

New research on this important site started in 2011 in a close cooperation between the Institute of Latvian History, Latvia, and the Centre for Baltic and Scandinavian Archaeology, Germany. Excavations demonstrated that significant parts of the midden were still preserved intact, despite extensive excavations during the 19th and early-mid 20th centuries. In addition it was possible to re-identify the human remains excavated by Sievers at Rinnukalns. He gave them to the famous German researcher Rudolf Virchow for his anthropological collection in Berlin, where they survived the chequered history of the 20th century until today. New osteological, stable isotope and radiocarbon investigations on these remains resolved the old re-search dispute. It is proven now that at least two burials were of Prehistoric age. They belong according to the East European Terminology to the Eastern Baltic Middle Neolithic. Nevertheless, stable isotope δ13C and δ15N values show that these people were still fishermen, hunters and gatherers and not farmers. The paper will give an overview of the most important results before the start of the new research project in 2017.

The Rinnukalns shell midden, Latvia: the new excavation and discovery of further burials

Valdis Berzins (Centre for Baltic and Scandinavian Archaeology; Institute of Latvian History, University of Latvia)

Co-authors: Harald Lübke1, John Meadows 1,2, Ulrich Schmöldicke1, Ilga Zagorska2, Ute Brinker4, Aija Ceriņa, Mārcis Kalniņš1,5, Kenneth Ritchie1, Mudīte Rudzīte6

1 Centre for Baltic and Scandinavian Archaeology (ZBSA)
2 Institute of Latvian History, University of Latvia
3 Leibniz Laboratory for Radiometric Dating and Stable Isotope Research, CAU
4 Faculty of Geography and Earth Sciences, University of Latvia
5 Faculty of History and Philosophy, University of Latvia
6 Museum of the University of Latvia

Following a very long interruption, research on the unique Rinnukalns freshwater shell midden in northern Latvia resumed in 2010–2011, and has continued since 2017 within the frame of a three-year interdisciplinary project funded by the German Research Council (DFG), enabling a comprehensive investigation of this classic Stone Age site by the Centre for Baltic and Scandinavian Archaeology (Germany) in collaboration with the Institute of Latvian History, University of Latvia. This research has not only given a new picture of subsistence activities and hunter-fisher lifeways at the shore of Lake Burtnieks – it has also led to the discovery of further burials, providing new opportunities for comprehensive study of human remains and burial practices. Following two seasons of excavation in 2017 and 2018, a wide-ranging assessment is being undertaken of the newly recovered and previous material from this site.

The paper offers an overview of the results obtained so far, providing a background to discussion of the burial evidence, and proceeds to examine the newly discovered burials. In the course of the new excavation, a 15 m long trench was placed across the midden; detailed photogrammetric recording allowed the individual midden layers to be traced systematically. Within the area already excavated in the 1870s the midden itself had largely been removed, whereas the orga-nic-rich deposit underneath had survived largely undisturbed, and excavation of this deposit has shed light on the site’s earlier history of occupation. The major programme of flotation and wet sieving has yielded an extensive corpus of fish and mammal remains, mollusc shell and plant macrofossils, contributing a wealth of new information to the current picture of Stone Age subsistence in the region. In addition to the two confirmed Stone Age burials une-arthed by Sievers in the 19th century, the new excavation revealed a further two intact graves: an adult male burial associated with a hearth as well as remains of an unusual funerary struc-ture, and, in a different part of the trench, an infant burial. Both interments were revealed directly underneath the lowermost midden layers. Separate human bones in and under the midden represent a number of additional individuals for analysis. Also pertinent to the discus-sion of Stone Age burials is the plentiful evidence for ochre processing – a previously unexplored dimension of the site.

Anthropological examination of the two new Stone Age burials 2017/01 and 2018/01 at Rinnukalns, Latvia.

Ute Brinker (Centre for Baltic and Scandinavian Archaeology)

Co-authors: Aija Macane2, Mari Töür3, Elina Petersone-Gordina4, Jörg Nowotny1, Dietmar Meinel5, Mārcis Kalniņš1,6, and the Rinnukalns Research Group1,7

1 Centre for Baltic and Scandinavian Archaeology (ZBSA), Schleswig-Holstein State Museums Foundation Schloss Gottorf, Schlossinsel 1, D-24837 Schleswig, Germany
2 Gothenburg University, Department of Historical Studies, Eklandagatan 86, 412 61 Gothenburg, Sweden
3 University of Tartu, Department of Archaeology, Jakobi 2, 51005 Tartu, Estonia
4 Durham University, Department of Archaeology, South Rd, Durham DH1 3LE, Great Britain
5 BAM Federal Institute for Materials Research and Testing, Division 8.5 ‘Micro NDE’, Unter den Eichen 87, D-12205 Berlin, Germany
6 Faculty of History and Philosophy, University of Latvia, Aapazijas bulvāris 5, Rīga LV-1050, Latvia
7 Institute of Latvian History, University of Latvia, Alupkalas bulvāris 4, Rīga LV-1050, Latvia

An interdisciplinary research project, financially supported by the Deutsche Forschungsge-meinschaft (German Research Foundation) since 2017, has engaged in the excavation and analysis of the Rinnukalns freshwater shell midden in northern Latvia. The ongoing research by the Centre for Baltic and Scandinavian Archaeology (Germany) and the University of Latvia has uncovered two new burials, allowing intensive interdisciplinary investigations of the hu-man remains and providing new insights into the burial practices. The burials are that of an adult man in crouched
position and that of a newborn, which was buried in prone position. The nature of the burials is primary. The skeletons were found basically in anatomically correct position and almost completely preserved, even though the skulls were fragmented. However, there are indicators of minor dislocation of bones due to the decomposition process as well as of displacement of bones due to bioturbation. One focus of the paper is on the grave fees-tures, recovery and documentation of the skeletons on site, including first results of the ar-chaethanatology of the graves. Further, an overview of the ongoing anthropological research on the human remains and the results of the 3D recon-struction of the adult skull based on 3D and micro CT scans are presented.

**Perched on the edge of eternity: Fish and funerary rites at Riņņukalns, Latvia**

Kenneth Ritchie (ZBSA)

Co-authors: Harald Lübke1, Ulrich Schmölcke2, John Meadows1,2, Valdis Bērziņš3, Mārcis Kal-niņš3, Ute Brinker1, Ilga Zagorska2, Aija Ceriņa2, Mudite Rudzīte1

1 Center for Baltic and Scandinavian Archaeology (ZBSA)
2 Institute of Latvian History, University of Latvia
3 Leibniz Laboratory for Radiometric Dating and Stable Isotope Research, CAU
4 Faculty of Geography and Earth Sciences, University of Latvia
5 Faculty of History and Philosophy, University of Latvia
6 Museum of the History of Science and Technology, University of Latvia

The famous freshwater mussel shellmidden at Riņņukalns, Latvia continues to reveal life in the Stone Age of the eastern Baltic. A long history of excavation beginning already in 1874 has revealed two Stone Age burials as well evidence for the lives of those interred and others who lived at the locality. Recent investigations beginning in 2010 have sought to clarify the research history of the site and led to a three-year project aiming for a more complete understanding of what occurred there using modern scientific archaeological methodology funded by the German Research Council (DFG), enabling a comprehensive investigation of this classic Stone Age site by the Centre for Baltic and Scandinavian Ar-chaology (Germany) in collaboration with the University of Latvia. Two additional burials were discovered during excavations in 2017 and 2018 and, intriguingly, one of them appears to have been accompanied by a grave offering of fish comprised almost exclu-sively of numerous very small individuals from the perch family (number of identified spe-cimens = 1534, including at least 11 individuals of perch, Perca fluviatilis; and 23 ruffe, Gymnocephalus cernua from a matrix sample totaling just 0.12 liters). Although analysis is ongoing, preliminary results suggest both that small fish were an important component of the overall subsistence regime during the site’s occupation – and that this particular de-posi-tion is unusual because of the overwhelming predominance of very young fish and the preeminence of the perch family. Interpreting this deposition accompanying the grave is challenging, not least because fish remains are seldom recovered in funerary contexts in the Stone Age. Zvejnieki, Latvia; Skateholm, Sweden; and Popovo, Russia are some notable exceptions where fish are a part of the mortuary process itself (Grünberg 2013, Zagorskis 2004). Our investigations at Riņņukalns emphasize the role of fishing in life and death for these prehistoric hunter-gatherers.

**Literature:**


**What’s left after death... Taphonomic processes within a mesolithic burial from the Oder Valley and their archaeological interpretation.**

Maha Ismail-Weber (Brandenburgisches Landesamt für Denkmalpflege und Archäologisches Landesmuseum)

Co-author: Bettina Jungklaus (Anthropologie-Büro, Weißwasserweg 4, 12205 Berlin)

The discovery of a late Mesolithic burial on the north-western edge of the Oder Valley near Rathsdorf (Märkisch-Oderland, Brandenburg) was a particular stroke of luck for the study of Mesolithic burial customs. The feature was partly excavated on site before the complete grave was lifted as a block. The grave contained a half-sitting/lying individual who had been buried, together with a single bone tool, three flint artefacts and numerous animal teeth, in a reddish sediment. The grave goods were relatively well-preserved, whereas the skeletal remains were mostly in such a poor state that they could not be simply removed from the feature. For this reason, and in order to thoroughly investigate the burial, it was decided to continue excavation in the laboratory. Thanks to funds from the German Research Foundation, it has been possible to “reverse excavate” the grave from below. This paper presents the first results of this innova-tive work and describes the taphonomic processes within the feature in more detail.

**Microarchaeological analysis of soil samples - a new method to study the uses of birds in Mesolithic burial practices**

Tuija Kirkinen (Osteoarchaeological Research Laboratory, Stockholm University)

Stone Age burial sites in various parts of Europe have revealed rich materials of animal bones, teeth and antlers and artefacts derived from them. Such material provides extremely important information about uses of animals in the burial practices and human-animal relationships. These are macrofound that in suitable circumstances (e.g., calcium rich soils) can have a very good preservation. However, very little evidence of uses of soft organic materials like fur, hide and feather have been reported.
in Mesolithic burials. In fact, hair, feathers and plant fibers belong to the “missing majority”, which is absent in archaeological record but which we can assume to have once been of importance. For example, uses of feathers in paraphernalia and ritual costumes and everyday clothing are described in various ethnographic and anthropological sources. We also know that feathers were loaded with meanings, for example, for the Tuva shaman, a headgear decorated with feathers and plumes symbolized the shaman’s ability to journey to the upper world. Such uses may have a complete wing attached, or they may consist of just the feathers. In archaeological contexts the use of feathers or wings has been revealed through the wing bones, either found in burials and used as part of the ornamentation, or as part of bone assemblages. However, the evidence of the prehistoric uses of feathers is still extremely scarce. In this paper, we present preliminary results from the animal originated fibers and feathers from Mesolithic burials in northern Europe. Our research is based on microscopical analysis of soil samples from prehistoric burials. We suggest that microarchaeology can bring new evidence, for example of the materials used for wrapping the bodies or feather used in paraphernalia or ceremonial dresses.

Stone Age Companions: Human-animal relationship expressions at hunter-gatherer cemeteries in the Eastern Baltic and Central Russia
Aija Macane (Gothenburg University)

The hunter-gatherer cemeteries around the Baltic Sea reveal complex burial practices. Animal remains, particularly animal teeth (mainly incisors and canines) have been extensively used for personal adornments at hunter-gatherer cemeteries around the Baltic Sea. However, other body parts, like jaws, phalanx, astragalus, antlers, claws have also been found within hunter-gatherer burials. This presentation focuses on new, interdisciplinary research of animal remains discovered in hunter-gatherer burials at Sakhtysh cemeteries (central Russia), Zvejnieki cemetery (northern Latvia) and Skateholm (southern Sweden). New analysis of animal tooth pendants discovered in hunter-gatherer burials at Sakhtysh cemeteries in the Upper Volga region of central Russia will be presented in more detail, along with some additional examples from Zvejnieki and Skateholm. The variation in the burial practices, and the role animal remains play in them, serves as a departure for a discussion about hunter-gatherer cultural encounters and their expressions, especially in the eastern part of the Baltic, where Latvia is situated in cultural crossroads, where influences from south as well as north and east are melted and expressed with some local variations. This study is part of the dissertation project that investigates the Holocene hunter-gatherer relationship with the animal world and surrounding environment, how animal and human worlds co-existed, confronted, affected and used one another during the Stone Age. The theoretical framework of this project is anchored in the growing field of environmental humanities and related theoretical approaches including posthumanism, relational ontologies, which all in different ways aim to decentralize human dominance and assign more active roles to other participants of the multi-layered relations between humans and animals.

Dating prehistoric burials in the north-east forest zone
John Meadows (Centre for Baltic and Scandinavian Archaeology (ZBSA) and Leibniz-Labor für Altersbestimmung und Isotopenforschung, CAU)

Intact burials, and even loose human bones, are perhaps our richest sources of information about past human life. Whatever aspect we are interested in (e.g. diet, mobility, health, mortuary practice, etc.), accurate dating can transform our understanding of the archaeological record, revealing temporal trends in practices or contemporaneous diversity, and allowing possible linkages to other regions and external events to be investigated. Wherever possible, therefore, we sample prehistoric human remains for AMS 14C dating. Obtaining a 14C age from a bone or tooth is seldom sufficient, however, particularly when dealing with prehistoric hunter-gatherer-fisher populations in north-eastern Europe. The risk of spuriously old dates due to dietary reservoir effects is now well-known, and contrasting approaches to mitigating this risk will be compared, using published examples. Secondly, the use of Bayesian chronological modelling to improve the dating of single graves, cemeteries and archaeological phenomena (such as mortuary practices) will be demonstrated. Finally, the issue of what dating pre-cision is actually useful will be considered, again using case studies, to see where better pre-cision is essential, and where it might be redundant.

Kits for afterlife. The evolution of burial assemblages from the Mesolithic to the Early Metal Age between the Baltic and the Ural
Anastasia Khramtsova (Graduate School “Human Development in Landscapes”, Kiel, Germany), PhD student

Grave assemblages as an essential material testimony of burial rites can mirror a wide spectrum of socio-cultural and economic aspects of past communities. In the East European forest zone, the Early and Middle Holocene period is characterized by the persistence of hunter-gatherer-fisher communities. The entangled environmental, technological, and cultural changes over this period are to some extent also reflected in the transformation of mortuary ritual. Material evidence for this is provided by the burial kit in terms of its contents, arrangements, and ways of representation. Tracking changing patterns in the burial assemblages in a broader spatial, diachronic
perspective can provide us with keys for understanding tendencies in the development of mortuary rites. Such a broad assessment can also help to identify the chrono-logical and cultural attributions of the graves through a range of relevant characteristics. To date, no comprehensive analysis of Stone Age burial assemblages from the territory in question has been conducted, neither in a wider temporal and geographical scale nor in a complex way. The comparative analysis of various parameters such as the morphology of artifacts, their location within the graves and their association with other features such as ochre distribution, fireplaces, pits and platforms, and the placement of the human remains themselves, therefore, is an important desideratum in current Stone Age archaeology of Northeast Europe. This paper presents the first results of a diachronic, comparative study on the Mesolithic to Early Metal Age hunter-gatherer burial assemblages in the East European forest zone. Although the uneven quality of field methodology and a dispersed and heterogeneous storage of collections and archives sometimes complicates the research process, a thorough assessment of the original field recordings, an analysis of burial goods from a technological perspective and the application of multivariate statistics provide valuable new insights which already at this stage help to better define the relative chronology of the burials and to better understand the socio-cultural developments forming and transforming the late forager societies of the Northeast European forest zone.

“Ritualized” technology?: blade arrowheads in the Late Mesolithic contexts of Karelia and Karelian Isthmus. 
Dmitriy Gerasimov (Peter the Great Museum of Anthropology and Ethnography / Kunstkamera / Rus. Acad. Sci.)

Tanged arrowheads on flint blades were wide-spread in Eastern Europe forest zone in Pre-boreal and Boreal time, during the Early Mesolithic period. Some after 8000 BC the interregional communication network that previously existed on those territories disintegrated, and in the territories with no natural flint sources (Eastern Fennoscandia and Karelia) lithic industries transformed in raw-material strategy, so they become to be based on use of local and easily accessible lithic materials – mainly quartz and slate. This consequently changed the lithic technology – mainly bipolar knapping was used for quartz processing. Flint artefacts including blade tanged arrowheads are practically not presented in the Late Mesolithic contexts in Fin-land and Karelia. This situation produced a hypothesis that the Late Mesolithic population of Karelia “forgot” or “lost” certain technological knowledge, and even was considered as an evidence of “cultural regression” in comparing to the Early Mesolithic period. Only during the last two decades new discoveries on Karelian Isthmus revealed materials that are evidence of sur-viving of blade and microblade production technology in the Late Mesolithic tradi-

tions of the discussing territories. But those finds are presented by technological waste, and there are practically no completely made artefacts from the settlement contexts. At the same time a large collection of tanged arrowheads on flint blades, as well as microblades, presented in materials of the famous Late Mesolithic burial ground on Tuzhny Olennyi Ostrov in the Onega Lake, Karelia. The composition of the artefact assemblage from the burial ground is very different from the surrounding contemporaneous archaeological contexts – which can be explained by the site specific function. Also the activity related with blade and microblade production is documented for contexts of Olennyi Ostrov 1 and 2 sites next to the burial ground, which were considered as funeral crew camps. One of the rear finds of a tanged arrowhead on a flint blade came from Raisala Joksemajarvi W site on Karelian Isthmus. Late Mesolithic context was discovered there on a former shoreline, and a flint tanged point was penetrated in sub-vertical position to the surface some 2-3 meters below the shoreline, that was covered by water during the time when the Mesolithic settlement was functioning. So it can be supposed that someone shot an “exotic” arrow made of rare imported flint to the air under the water. This hardly can be a result of fish shooting – otherwise such finds will be presented more often in the Late Mesolithic contexts. More probably here we have a result of some “offering”. Those cases are evidence that flint tanged arrowheads are known in the Late Mesolithic tradition in Karelia and Karelian Isthmus. But the use of these “exotic” tools was more probably related not with day-by-day activities, bus with certain ritual practice. This talk was prepared within the project “Bioarkeologiset menetelmät esihistoriallislen yhteisön maailman-kuvan ja ihmisen ja eläinten suhteiden tutkimisessa – pilotitutkimuksesta Olennyi ostrovin kivikautisen kalmiston löytöaineisto” supported by Kone Foundation.

Corded Ware Warriorhood – a „pan-European” monolith or a set of local traditions? 
Rafal Skrzyniecki (University of Adam Mickiewicz in Poznan) 
Co-author: Mateusz Cwalinski

The recent archaeological comeback of the concept of late-Neolithic migration from the East raises many new-old questions about the nature of interaction between past communities representing old, agrarian and new, pastoral-oriented way of life at the turn of the 4th and 3rd millennium BC. The appearance of a new cultural phenomenon – the Corded Ware Culture – and quickly growing number of single graves of male individuals buried with their weapons, marked a major change in conceptualisation of violence. According to H. Vandkilde (2006), the inclusion of weaponry into funerary rituals was a result of institutionalization of war and its main actors, i.e. – warriors. At the beginning, Corded Ware warriorhood was symbolised by a shaft-hole battle
amerax made of stone. It became a status object and most probably also a pri-mary shock weapon used by Corded Ware people. But was it the only one? The aim of this article is to present results of comparative analysis of the so-called warrior graves in different CWC regional groups. Preliminary results of author’s research have shown that communities from different parts of the CWC oikumene did not share a universal concept of warriorhood, but instead followed their own, local patterns of warring and commemorating idealized war-rior identities. In total, 228 graves from Lesser Poland, Carpathian Foothils, Sokol Ridge, Lublin Upland and Greater Poland – Kujavia Plain were examined using statistical tools. Conducted analyses included variables such as: differences in grave structure, sex and age of deceased, arrangement of lower and upper limbs, body orientation, types and quantity of weaponry and other grave goods, as well as their location in the burial pit. The last trait was assessed accord-ing to the scheme published by Bourgeois and Kroon (2017), which allowed comparisons with their results for the Corded Ware communities from Bohemia, Germany, Nether-lands and Denmark. By assessing the level of correspondence between abovementioned features, it was possible to determine main types of female and male burials, presumably reflecting real-life identities of the CWC community members. As a general remark, it needs to be stressed that CWC warriorhood was a strictly male-oriented social identity. By observing the development of a “warrior” construct in various provinces of the CWC from diachronic perspective, several observations could be attained. The dominant symbolism of battle-axes had had been a com-mon cultural trait in the first half of the 3rd millennium BC, but shortly after its significance began to wane, especially among eastern CWC communities, which adapted more steppe-like way of fighting with bows. Nevertheless the tradition of close-range combat “survived” and even flourished in the west, especially in Bohemia and Moravia, where additional types of shock weapons, such as stone maces, were deposited in graves.

Burials with weaponry in Neolithic-Eneolithic burial grounds of the Upper Don River region

Roman Smolyaninov (Lipetsk State Pedagogical P.Semenov-Tyan-Shansky University)
Co-authors: Elizaveta Yurkina (Lipetsk State Pedagogical), P.Semenov (Tyan-Shansky Univer-sity)

Burials occur quite rare at the territory of the forest-steppe Don River region. In the Don River basin only six Neolithic-Eneolithic sites contained burials. At three of them single graves (Glinische, Lobovskaya, Universitetskaya 3), and at three more – burial grounds (Ksizovo 6, Vasilyevsky Kordon 17 and 27) were found. From the total of 51 graves only in 16 weaponry artifacts are present. The burial grounds are situated either at floodplain outliers or at extre-mities of low fluvial terraces above floodplain. At the Lobovskaya site a single burial was made in oval pit of 15 cm depth and contained human bones. According to the report of A.T. Sinyuk, the large bone barbed point was in it, the pit was surrounded by middle size sandstone boul-ders and contained red ochre remains. At Ksizovo 6 seventeen skeletons (six men, five women and six children) from fifteen graves were discovered. The burial ground with inhumations contained graves of two cultures – Lyalovo (dated the first quarter of the 1Vth mill. BC) and Srednestogovskaya (mid IVth mill. BC). Weaponry objects were found only in five graves, two of a child and the rest of adult men aged more than 45 years old. In all three burials sandstone boulders and bone weapons of different kind were detected, and also one flint spear point. At Vasilyevsky Kordon 17 site weaponry objects were discovered in four single burials and in the collective one, where bodies were placed extended or crouched on the back in oval pits. One flint spear point and seven flint arrowheads were found there. Collective burial (№2) contained three skeletons placed in the round pit dated the first half of IVth mill. BC. At Vasilyevsky Kordon 27 site four burials were discovered. In two of them the projectile weaponry objects were found. In the first one two arrowheads made of quartzite and flint were put together with 138 ceramic beads and one of copper, in the second burial (dated mid IVth mill. BC) – the fragmented flint arrowhead. The typological diversity of all these bone and stone weaponry objects points at the multidimensional economics of Neolithic-Eneolithic communities of of the forest-steppe Don River region. Weaponry had seemingly not only utilitarian function (hunt, war) but also the spiritual one. Intact flint spear points and arrowheads were put into burials, probably reflecting the high social rank of buried persons. Weaponry objects in the child burial may witness the inherited social rank of the diseased.
A diversity of barrows? – Early earthen grave mounds between the Caucasus and the Atlantic

Tuesday March 12th, Room 207
Session organizers: J. Brinkmann, M. Furholt, R. Hofmann, M. Shatilo

8:30 Artificial mounds and the beginning of monumentalities from western France in the Vth mill. BC
Keynote lecture: Luc Laporte (French National Centre for Scientific Research, UMR 6566 CReAAH “Centre de Recherche en Archéologie, Archéosciences, Histoire)

09:15 The Many Facets of Early Burial Mounds
Keynote lecture: Volker Heyd (University of Helsinki)

09:50 Discussion

10:30 Chronology? Environment or ...? The diversity of the TRB non megalithic monuments in the area between the Oder and the Bug River in Central Europe
Dariusz Krol (Institute Archaeology Rzeszow University)

10:50 Modelling the emergence of barrows a case study of burial mounds in the Northwest Azov
Alisa Demina (National University of Kyiv-Mohyla Academy, Kyiv, Ukraine)

11:10 Stone cold crazy: Megalithic tombs and flint axe heads as materialization of the changing socioeconomic structures in the TRB-complex
Maria Wunderlich (Institute of Pre- and Protohistoric Archaeology, Kiel University)

11:30 Who were these barrows for? Grave mounds from the III mill. BC in Polish Lowland
Marzena Szmyt (Adam Mickiewicz University, Poznan, Poland & Poznan Archaeological Museum)

11:50 Discussion

13:30 The choice of erecting individual burial mounds or not – the west-east bipolarity in the southern Cimbrian Peninsula in the early third millennium BC
Sebastian Schultrich (GSHDL Kiel University)

13:50 Did ‘Tripolians’ build the first kurgans in the North-Pontic steppe?
Mila Shatilo (Kiel University, Institute for Prehistoric and Protohistoric Archaeology)

14:10 What was inside?
Jan Piet Brozio (Institute of Pre- and Protohistoric Archaeology, CAU Kiel)

14:30 Social memories and site biographies: construction and perception via burial mounds
Johannes Müller (Institute of Pre- and Protohistoric Archaeology, Kiel University)

14:50 Discussion

15:30 Danubian vs. Megalithic burial traditions in Neolithic and Early Bronze Age in SE Poland
Slawomir Kadrow (Institute of Archaeology, Rzeszow University, Poland)

15:50 The social contexts of early European burial mounds
Martin Furholt (University of Oslo, Institute for Archaeology, Conservation and History)

16:10 Subkurgan sacred spaces in eneolithic of north-west pontic space
Svitlana Ivanova (Doctor of Historical Sciences, Main Researcher, Institute of Archaeology, National Academy of Science)

16:30 Eastern facades with and without earthen long barrows in southern Sweden
Lars Larsson (Professor emeritus)

16:50 Discussion

17:30 Architecture for the Dead – Mound Construction and Use in the 4th millennium BC
Maykop culture (North Caucasus, Russia)
Sabine Reinhold (Eurasia Department, German Archaeological Institute)
A diversity of barrows? Early earthen grave mounds between the Caucasus and the Atlantic

Keynote speakers: V. Heyd (University of Helsinki, Department of Cultures); L. Laporte (French National Centre for Scientific Research)

Session organizers: J. Brinkmann, M. Furholt, R. Hofmann, M. Shatilo

In the 4th millennium BC the practice of burying the dead under or in an artificial earthen mound appeared in Europe from the Caucasus to the Atlantic seaboard. This phenomenon is associated with different communities, including the Northern European TRB, North Pontic pastoral groups, or some late Tripolye sites. It has been described with the use of various terms: kurgans, humke, høje, megalithic tombs, and non-megalithic long barrows. The idea to build soil constructions above burials that remained visible in the landscape could reflect specific changes in the worldview common to these different Neolithic and Chalcolithic societies. Nevertheless, distinct research traditions draw clear lines in the geographical distributions of burial mounds and connect them with the local developments rather than widening the scope. For a better understanding of the topic we want to examine the ‘barrow tradition’ as a whole, looking beyond the borders of archaeological cultures and traditional research foci. We would like to discuss several questions:

• What are the social and cultural contexts under which the practice of burial mound construction is starting, and can we identify ideological patterns in the burying communities?
• Are specific subsistence practices, and forms of social organisation connected to burial mounds, and is the common association of burial mounds with rising social stratification justified?
• Are burial mounds connected to a distinct cultural “package” (g. mound, complex stone architecture, specific burial rites like collective graves), and if so how are they evolving over time?
• Are there distinct or diverse relations of barrow placements and settlement patterns, and how do burial mounds impact the cultural landscapes?

All these questions evolve around the main theme of this session, namely as to how far the appearance of these different mound-building practices can be explained by a reaction to the same or similar processes of factors, whether they reflect a shared ideological background (artificially divided by research schools), or if those barrows represent different, unconnected stories and independent ideas. We would like to invite colleagues who are interested in this topic and are open to rethinking the traditional narratives/interpretations, and who are willing to engage in a transregional discussion about this large-scale European phenomenon.

Artificial mounds and the beginning of monumentalities from western France in the Vth mill. BC

Keynote lecture: Luc Laporte (French National Centre for Scientific Research, UMR 6566 CREAH “Centre de Recher- che en Archéologie, Archéosciences, Histoire)

Session 4 of this meeting focuses on “Barrow traditions”, understood as beginning during the investigate questions of the same order as those proposed by the organizers. From a more continental point of view, two sequences have drawn particular attention, one located in the center of the Paris Basin and the other on the banks of the Gulf of Morbihan. Reviewing these examples in a wider context, which stretches from the Channel to the Ga- ronne estuary, changes the perspective. The results of recent rescue excavations, especially in Normandy, as well as taking into account previously published but somewhat unnoticed data, offer a renewed panorama for the emergence of these first monumentalities between 4700 and 4300 av. n.e. Trapezoidal (and not-sepulchral) monuments with walls made of wood or earth, and circular huts housing an individual burial secondarily covered by an earthen mound (or even perhaps some small and round dry-stone structures that already have an access corridor), appear at about the same time as this curious idea of erecting very large blocks pointed towards the sky or moving a few others for the staging of some funerals. In the whole sector, elongated ditched structures surround a high diversity of funerary constructions.

Such separate elements at the beginning will gradually aggregate - differently in each place - , thus reserving for the dead a clearly demarcated area, sometimes hidden, above the same of the land through parcel features seem to appear a little later, interrogating the emergence nium, the detailed analysis of construction sites suggests the existence of real specialists, ma- sons, perhaps even itinerant.

As the next millennium progresses, when similar traits develop in both the British Islands and Northern Europe, it is likely that these traditions will no longer be built in western France. Other megaliths - other practices - will replace them in Brittany, as well as in the Paris Basin around 3300 n.e., which this time undoubtedly present strange parallels with the contempo- rary monumentalities of continental and northern Europe.
The Many Facets of Early Burial Mounds

Keynote lecture: Volker Heyd (University of Helsinki)

Burials mounds are a world-wide phenomenon, spanning the last 6500 Years and connecting Continents not only of the ‘Old World’ but also including the Americas. In Europe, they seem –following current understanding– to have their origins in two different geographical regions: 1) In the west, that is Atlantic France and here particularly Brittany; and 2) in the east, that is the Caspian-Pontic steppe and here the lower Volga-Don steppe. In both regions the dates may be as early as the mid-5th millennium BC and one wonders if there is a link in one way or another between the two? Whatever, my presentation will mostly focus on the eastern branch in which we observe an expansion of idea of erecting a monument over the burial of one (or several) particular individual(s).

As far as we can follow, the round mound custom reaches the west of the Black Sea already in the late 5th millennium BC, and regions further to the west up to the Elbe river catchment then in the mid 4th millennium, with monumental mounds also erected roughly contemporary in the Caucasus. However, it remains open whether Central Europe was influenced rather from the east, or the west, or by both! At least from the later 4th millennium, we see the custom getting speed, and round burial mounds are now becoming a wider phenomenon in the steppes of eastern and southeastern Europe, the Balkans, and the Carpathian basin, with a question mark of their extension towards the west as there is now clearly an interference with the Megalithic world. In any case, this success story is then culminating in the 3rd millennium, when mounds are now mushrooming virtually everywhere in Europe.

At least from the 3rd millennium BC the burial mound is not only serving as a monument but also an ideological, social and perhaps political marker, and my lecture will highlight its multiple functions and links beyond their spread. It will also, however, make aware of the dire situation and the ongoing destruction of mounds particularly in the Southeast of Europe.

Chronology? Environment or ...? The diversity of the TRB non-megalithic monuments in the area between the Oder and the Bug River in Central Europe

Dariusz Krol (Institute Archaeology Rzeszow University)

TRB communities spread over large areas from the Netherlands in the west to western Ukraine in the east are primarily well-known for the construction of intriguing monumental burial structures. They were responsible for building typical megalithic (i.e. dolmens, passage-graves), as well as non-megalithic forms. While the structures of the first of these types were undoubtedly significant of the north-western areas of TRB range, the second was very common in the eastern “world” of this cultural phenomenon – mainly to the east of the Oder on the territory of Poland. So far, over 250 cemeteries with relics of TRB non-megalithic architecture have been recognized there. However, in this case not the general amount of data is the most quantity, but rather the puzzling morphological diversity of discussed structures. Apart from model trapezoidal monuments with large stone kerbs, often referred to as kuyavian long barrows, there were also completely different monuments. There are known cases that only clay and/or timber were used for their construction, while stone material was omitted. In addition, there are also numerous variants of TRB non-megalithic structures that are difficult to clearly define. How can we explain this diversity? Is this only a reflection of regional specificity and environmental properties – the availability or absence of various types of stone materials? Or maybe we should perceive this diversity in a more complex way? As a result of the variability of architectural preferences over time and/or alternative functions and social meanings? The presented studies will show the most meaningful results of the spatial and chronological analyses of these non-megalithic burial structures in the context of various environments and settlement networks in eastern “world” of TRB.

Modeling the emergence of barrows: a case study of burial mounds in the Northwest Azov.

Alisa Demina (National University of Kyiv-Mohyla Academy, Kyiv, Ukraine)

Burial mounds have become the definitive feature of Northern Azov landscape. The abundance and diversity of sites provide insightful opportunities for investigating the effect of environmental factors on the regional differentiation of the barrows. This study is particularly focused on the role of both natural resources and preceding burial mounds in the formation of the barrow systems in the Northwest area of Azov sea coast. Multivariate statistical analysis has been used to explore the data as a complex phenomenon on the artifact, site and landscape levels. The application of agent-based modeling for hypothesis testing enabled us to look beyond the static representation of data and analyze the decision-making strategies. The results showed the high resilience of the barrow system. The construction patterns, although characterized by general effectiveness, had been strongly influenced by ritual requirements. This research contributes to the studies of burial mounds and archaeological data analysis.

Stone cold crazy: Megalithic tombs and flint axe heads as materialization of the changing socioeconomic structures in the TRB-complex
Maria Wunderlich (Institute of Pre- and Protohistoric Archaeology, Kiel University)
Second main author: Michael Müller, Institute of Prehistoric Archaeology, Free University of Berlin

The rise of monumental architecture within the TRB-complex must be seen as a long-standing progress, in which's course the understanding of ‘monumentality’ and the specific construc-tion of burial mounds changed considerably. While this process started with the erection of non-megalithic long barrows, different kinds of megalithic constructions functioning as grave chambers became common later on. In the light of these diverse and long-term developments, a broader examination of the accompanying phenomena is crucial to understand the under-lying social mechanisms and behavioral choices behind the erection of burial mounds. The praxis of erecting burial mounds in the TRB region is accompanied by a slow introduction of grain cultivation. The cultivation of land was intensified at the same time as megalithic tombs became common. This framework, covering the EN (4100–3300 cal BC) as well as the earliest MN (3300–3100 cal BC), was also characterized by an intensive practice of depositing different kinds of objects, mostly flint axe heads. Megalithic tombs and flint axe heads can equally be seen as important materializations of processes ongoing in the TRB societies. This is referring to the high investment of labor force and time investment into the construction of the graves respectively the production of flint axe heads. Both (non-)megalithic burial mounds, as well as flint axe heads could be interpreted as an expression of the changing social structures which required, with the ongoing intensification of agricultural activities, the establishment of com-munal and co-operative networks. With our talk, we will address the aforementioned ques-tions. We will focus on work calculations connected to the construction and production of megalithic tombs, burial mounds and flint axe heads. In connection to that the gradually accompanying creation of cultural landscape with the help of monumental building and deposi-tions will be discussed. We seek to understand the entanglement of diverse spheres, such as ritual-economy, competitive and cooperative frames or interaction.

Who were these barrows for? Grave mounds from the III mill. BC in Polish Lowland
Marzena Szmyt (Adam Mickiewicz University, Poznan, Poland & Poznan Archaeological Museum) 
Co-author: Czebreszuk Janusz, Adam Mickiewicz University in Poznan, Poland

Barrow graves were built in the Polish Lowland during the first half of the 3rd mill. BC and at the end of this millennium. In terms of the archaeological taxonomy they were created and used by people linked to the Globular Amphora culture, Corded Ware culture and Unetice culture. The barrows of these three cultural contexts have some similar traits and at the same time they differ in many aspects. We intend to examine both similarities and differences but focus our attention primarily on the social contexts of the barrow graves.

The choice of erecting individual burial mounds or not – the west-east bipolarity in the southern Cimbrian Peninsula in the early third millennium BC
Sebastian Schultrich (GSHDL Kiel University)

Although the area of today Schleswig-Holstein is geographically very small, in prehistory it is characterized by the appearance of huge cultural differences. A well-known example for this is the dissemination of Younger Neolithic (YN, also Single Grave/ Corded Ware Culture, c. 2850 – 2250 BC) burial mounds. In the early phase (c. 2850 – 2600 BC) such monuments predomin-antly occur in the western part of this region whereas they are almost completely absent in the eastern part. Classically, it is assumed that, as time moves on, the bulk of Younger Neolithic culture shifts from west to east. Interestingly, a similar chrono-spatial shift from west to east shall be present in the subsequent Late Neolithic (LN) as well. The object of this presentation is to show that for both periods this assertion is not true. This is demonstrated by the fact that certain (status) items of early YN and early LN actually are to be found as single finds in great numbers in the east of the investigation area. Moreover, considering pollen profiles, it clearly has been shown that the eastern areas were occupied by humans constantly. Indeed there are differences in-between west and east but they are not determined chronologically, rather they are of a general validity, as a similar spatial dissimilarity also has been recognized in the Middle Neolithic (MN). In the ensuing MN many developments are initiated that characterize the following YN period. In the eastern part of the southern Cimbrian Peninsula the erection of hundreds of MN megalithic tombs is directly linked to an intensive land-use. Contrary, in the western part no link between the building of MN monuments and land-use is observed and the number of megalithic tombs is comparably lower. The building (and utilization) of these monuments and the linked land-use is regarded as displaying collective efforts. Accord-ingly, one possible interpretation of this geographical contrast is a dissimilar perception of the individual and the collective sphere. With this in mind, it might not be astonishing that in the early 3rd mil. BC the new and super-regional shared sign of burial mounds highlighting the individual became adopted much more intensive in the west. Here the preconditions for dis-playing individual status/social role were more suitable for this novelty than in the east. In LN this bipolarity is substantiated by the distribution of flint daggers. They also are to be found frequently as single finds everywhere but rarely in burial contexts in the east. Furthermore, in LN bronze artefacts appear which share the significance according to their contexts – in the west
they are buried with the death, in the east they have been deposited as single finds or even in multi-object hoards. This shows that the social practise of how to deal status objects and attached to this the choice to erect burial mounds or not is a reflection of certain cultural rules which kept validity for centuries. From the MN to the LN, this very small region at the edge of Central Europe is characterized by a bipolar situation, demarcating the western, inland, and the eastern, coastal communities. This realisation supports recent trends in research that do not regard the spread of the Corded Ware in the 3rd third mil. BC as one unchangeable package, one ideology that can only be articulated in one way. Rather, there appear to be huge and locally rooted differences in the choice of which attributes were adopted and which were not.

Did ‘Tripolians’ build the first kurgans in the North-Pontic steppe?

Mila Shatilo (Kiel University, Institute for Prehistoric and Protohistoric Archaeology)
Co-author: Robert Hofmann (Kiel University, Institute for Prehistoric and Protohistoric Archaeology)

The topic regarding the early kurgans in the North-Pontic region, despite a “substantial” amount of research, is still relevant. Of primary importance is the much discussed question of dating the earliest burial mounds and their cultural context. The topic is rather difficult to study due to the fact that the archaeological cultures have been split up and frequently re-named. As a result, one group of sites sometimes has up to seven different “labels” depending to a particular author’s preference. Such a situation characterizes well enough the specifics of the region, the archaeological material of which is extremely heterogeneous. Thus, some burial sites of the North-Pontic Steppe zone sometimes contain pottery and figurines that are typical for Tripolye. In this connection, the meaning of these artefacts is the topic of discussions in literature: from the presumptions that they could indicate the “Tripolye population” being in the steppe to the presumptions that the findings could point to exchange and a channel of the first steppe pastoral groups’ enrichment. Here, the analyses of different social contexts and comparing them is important - for example, the individual burials in the Steppe as a sign of the beginning of “individual character perception” and the absence of any traces of such in Tripolye settlements. The most examined “Tripolye trace” in the Steppe are Usatovo sites, the mounds of which contain such a set (or a package) of finds as individual (both central and lateral) burials, tripolye pottery, monumental architecture, stelae and traces of cult activities. Not so well pronounced, but not less important, are the sites of the Zivotilovsko-Vovchanskiy and Serezlievskiy types, which also have “Tripolye finds”. We can conclude, that in our opinion, the role of Tripolye in the appearance of the early kurgans needs to be discussed one more time.

What was inside?

Jan Piet Brozio (Institute of Pre- and Protohistoric Archaeology, CAU Kiel)
Co-authors: Jan Weber1, Johannes Müller2, Lorenz Schwark2
1 Institute for Pre- and Protohistory, Christian-Albrechts-University
2 Institute of Geosciences, Department of Organic Geochemistry, Christian-Albrechts-University Kiel

What was inside? Lipid residue analyses of funnel-beaker pottery from a megalithic tomb in comparison of a contemporaneous domestic site in Eastern Holstein, Northern Germany. In the fourth millennium BCE, a development of a cultural landscape associated with the construction of monuments in the form of tombs and enclosures took place. Within this phenomenon, besides changes in grave architecture, a change in burial practices can also be observed. The construction of passage graves for several individuals is connected with grave goods in-ventories in which ceramic vessels played an important role. In addition to their function as a means of social expression, the vessel objects are interpreted as containers for food. Organic residue analysis (ORA) has been applied to archaeological studies to determine the original contents of pottery vessels, the use of different types of vessels and to reconstruct ancient diet. Here, we present ORA of vessels from a megalithic tomb in Eastern Holstein, Northern Germany, and provide for the first-time insights into the organic composition of grave goods from various burial phases in a passage grave between 3300 and 2900 BCE. The results are in contrast to the results of further samples from vessels of a simultaneous funnel-beaker-temporal domestic site 4 km away. The comparison between a burial site and a domestic site refers to different social practices in the handling of food in the ritual and profane areas, a distinction that can be traced both in the material culture and in the design of the cultural landscape.

Social memories and site biographies: construction and perception via burial mounds

Johannes Müller (Institute of Pre- and Protohistoric Archaeology, Kiel University)

Institutional knowledge in non-literate societies is transferred via different avenues from generation to generation. One of the most important media for memory transformation is their materialisation at focal places of these societies. Biographies of European Neolithic burial mounds and places offer diverse rhythms in the creation of such ancestral and social memories. Examples from barrows and megaliths display this materialisation and the active roles that these monuments play in such transformation processes.
Danubian vs. Megalithic burial traditions in Neolithic and Early Bronze Age in SE Poland

Slawomir Kadrow (Institute of Archaeology, Rzeszow University, Poland)

Neolithic and Early Bronze Age funeral practices at SE Poland can be classified under two main traditions: Danubian and megalithic one. However, this division does not include burials of Globular Amphorae culture. Their appearance and development in the considered area, especially in the early and middle Eneolithic, can be treated as an effect of globalization processes. The older, Danubian process developed from the beginning of the Neolithic to the beginnings of the Eneolithic, i.e. for about two thousand years, reaching the culmination at the end of the 5th millennium BC. In the last stage of development, the Danubian funeral rite took the form of ‘gender-differentiated’ ritual practices, also known in the cultures of Hamangia/Varna and Tiszapolgár/Bodrogkeresztúr. The TRB expansion from the west and north west has put an end to the Danubian cultures in SE Poland. It was sometimes accompanied by a megalithic rite, which can be regarded as a clear manifestation of the globalization (megalithization) processes that spread from Brittany in France. The farthest east these processes reached the eastern borders of present Poland. Despite the complete disappearance of the Danubian cultures in the discussed area, the tradition of ‘gender-differentiated’ ritual practices known here from the Lublin-Volhynian culture, representing in Poland the youngest stage of the development of the Danubian world, was continued in Corded Ware and Mierzanowice cultures. There are frequent cases of destruction of the graves of Danubian cultures caused by the TRB population. The rule, however, is the continuation of the use of TRB’s places of memory (cemeteries) by later CWC and Mierzanowicka culture, despite the lack of connections in the funerary rite of these cultures. The processes cited above indicate a complicated course of the cultural process in SE Poland. The sequence of cultural change is not always accompanied by the appropriate sequence of funeral rites and the use of ‘sites of memory’. An important role modifying the image of burial traditions was played by globalization processes, including, first and foremost, the spread of copper metallurgy on the one hand and megalithization on the other.

The social contexts of early European burial mounds

Martin Furholt (University of Oslo, Institute for Archaeology, Conservation and History)

In this paper I want to explore and compare the forms of social organization connected to different traditions of early burial mounds in different parts of Europe. Here, the most striking contrast is that between the Northern Pontic regions and the Atlantic megalithic traditions. The relative contemporaneity of these phenomena could be interpreted in terms of idea transmission, or convergent social processes. The latter is an especially intriguing proposition given the widespread emphasis on the supposedly stark cultural and social differences between the Northern European farmers and Eastern European pastoralists. These labels probably obscure a much more complex set of social factors, some of which probably highlight clear similarities between these communities. The perspective taken here will highlight a bottom-up approach, taking a start from mound building activities and connected ritual practices, which will then be related to the monumental functions of these building in an overall social context.

Subkurgan sacred spaces in eneolithic of north-west pontic space

Svitlana Ivanova (Doctor of Historical Sciences, Main Researcher, Institute of Archaeology, National Academy of Science)
Co-author: Dmytro Kiosak, PhD, assistant professor, Odessa I.I. Mechnikov National University

Early radiocarbon dates of many tumuli of the Ponto-Caspian steppe are connected with other objects which are older than the burial mounds - sanctuaries (45-40 centuries BC). And the first barrows are appearing not earlier than 38/37 centuries BC. The phenomenon of soil sanctuaries of the Early and Middle Eneolithic, may have arisen under the Central European influence. Neo-eneolithic interactions between the steppe and the world of early farmers are also documented by the genetic and anthropological analysis of ancient populations.

Eastern facades with and without earthen long barrows in southern Sweden

Lars Larsson (Professor emeritus)

Until about 20 years ago the early Neolithic earthen long barrow was not known in Sweden as a burial type despite a large number of excavations of Early Neolithic settlement sites. However, a considerable number of earthen long barrows have been identified in nearby Denmark. This was a reason why a project was initiated to find out whether earthen barrows actually existed in southernmost Sweden. The eastern parts of two long barrows, regarded as long dolmens, were excavated and both presented features such as a facade similar to Danish earthen long barrows. This might show that a number of long dolmens actually had an initial stage as earthen long barrows. At about the same time as the excavations above were conducted, a couple of excavations due to development showed similar features. In recent years a number of other earthen long barrows have been identified. In addition to the well-known long barrows a number of excavations have shown that facades seem to be common, with a very low barrow or in most cases no barrow at all. These different aspects will be discussed.
Architecture for the Dead – Mound Construction and Use in the 4th millennium BC Maykop culture (North Caucasus, Russia)
Sabine Reinhold (Eurasia-Department, German Archaeological Institute)
Co-author: Alexey Kalmykov

Burial mounds are the most emblematic monuments of Eurasian steppe landscapes. Mounds are ubiquitous and have transferred most parts of Eurasia into a unique ancestral landscape. Stating from first small earthen construction in the late 5th millennium, which were first used as memorial in an area between the Lower Danube, the Volga and the Caucasus, burial mounds in the North Caucasus were transformed during the early 4th millennium into a high skilled architecture of dead. Mounds of gigantic size were constructed on-top of lavishly equipped burials of important individuals, such as the eponymous grave of Maykop-Ozhad. Maykop communities operated at monumental scales, employed complex building structures and an artificially transformed the former pristine landscapes. Mounds of the Maykop phenomenon range among the earliest constructions of this type. The combination of a mound for a single individual and burial gifts that reflect on his/her social personae, is a novum but outline the prototype of a monumental memorial later used by most Bronze Age societies all over Eurasia. In this presentation we will discuss results of the 2018 excavation in a Maykop mound from a site near the town Essentuky in the North Caucasus. Modern excavation techniques and an excellent documentation offer the chance to dissect building stages in details, follow the sequences of building, the alterations in the shape and size of the mound, and the components of construction. They have confirmed earlier ideas of Maykop mounds as a specialized form of complex ritual architecture, not just the heaping up of earth for a memorial. Even not being one of the mega-mounds, the Essentukiy mound reveal similar construction principles as the huge buildings which characterise the early Maykop epoch. From this latest observation we can reconstruct the châine opératoire of such structures from the burial to the finished monument and follow the complex rituals associated with burial and mound construction. This new insights in the details of mound construction in its earliest stages will offer the basis to discuss mound building in other parts of Eurasia as results of diffusion or independent developments.

Mound building – constructions of community and identity
Anne Birgitte Gebauer (guest researcher, The National Museum of Denmark)

One of the defining features of Neolithic societies is the remodeling of the landscape by extensive mound-building. The question is why such a massive expenditure of time, labor and resources was necessary and what was the role in society of the amplification of symbolic and ritual activities? Changing subsistence strategies, increasing population density and size of co-resident groups may have produced different perceptions of time and space as well as individual and collective identity. Mound building could be part of the cultural adaption to these changes. By using different examples from the Danish Funnel Beaker culture various aspects of the significance of mound building will be discussed.

Several kinds of ritual activities were performed in the Funnel beaker culture, some sites ap-peared to be related to topographically distinctive location such as water (bog sacrifices) or promontories and hilltops (enclosures), but neither type of site was memorialized in the landscape by durable structures. Mound construction was restricted to funerary sites, however only some burials were covered with an earthen barrow. Some wooden structures surrounded by a palisade were left uncovered while others were embedded in long barrows. Some megalithic tombs were covered by an earthen mound, but not all tombs were covered right away after construction, and some were apparently left free standing without a mound. A few simple inhumation graves without mound-cover have achieved a degree of monumentality by being located in the immediate vicinity of a mound covered monument. Also, more impressive degrees of monumentality might evolve by repetitive use and additions to older monuments. In addition, mounds may play a different role as constructions sites and as final monuments. Finally, monuments may serve as arenas for ritual activities after they were finished. By analyzing the different contexts of mound building, the paper will discuss the social, cultural and ideological role of these earthen structures within the Funnel beaker culture.
From Tells to settlement systems: Landscape and networks along the Danube and the Tisza from the Neolithic to the Bronze Age

Thursday March 14th and Friday March 15th, Room 208

Session organizers: M. Savu, R. Staniuk, R. Hofmann, J. Müller

WED 15:30 POSTER SESSION People, landscape and diachronic choices. 
Cătălin Lazăr (ArcheoScience/RO, Research Institute of the University of Bucharest (ICUB), University of Bucharest, Romania)

15:40 POSTER SESSION Fishing on the Lower Danube during the 5th millennium BC. Was it specific only to the settlement mounds? 
Mihaela Savu (Graduate School Human Development in Landscapes)

THU 08:30 Against the state: Prehistoric landscape histories in the Lower Danube Basin 
Keynote speaker: Dušan Borić (Columbia University)

09:00 For Comparative, Long-Term, Collaborative, Regional Research in European Prehistory 
Keynote speaker: William Parkinson (Field Museum of Natural History and University of Illinois at Chicago)

09:30 Neolithic tells as spaces of memory. Place-making and efficacious ancestors\" 
Alexandra Ion (Institute of Anthropology \Francisc Rainer\ & McDonald Institute for Archeological Research)

09:50 Discussion

10:30 The lithic procurement and production in the Late Neolithic period in southwestern part of Hungary. A case study from Alsónyék-Bátașzék. 
Kata Szilágyi (Móra Ferenc Museum, University of Szeged)

10:50 On the Northern 'Periphery' of Tells – New perspectives in Neolithic Settlement Network Analysis in North-East Hungary 
András Fuzesi (Eötvös Loránd University)

11:10 Aspects of Tisza cultural processes as reflected in ceramic assemblages at Öcsőd-Kováshalom (Hungary) 
Pál Raczy (Eötvös Loránd University)

11:30 Death on the tell. Human remains from Neolithic settlement mounds on the Great Hungarian Plain 
Alexandra Anders (Institute of Archaeological Sciences, Eötvös Loránd University)

11:50 Discussion

13:30 Origins of households at Neolithic and Bronze Age tell settlement complexes on the Great Hungarian Plain 
Paul R. Duffy (The Archaeology Centre, University of Toronto)

13:50 Early neolithic settlement systems along the lower Mureș/Maros river valley 
Lennart Brandstätter (University Tübingen)

14:10 Environmental setting, settlement dynamics and land use in the Bordoš micro-region in the Serbian Vojvodina from the Neolithic to the Bronze Age 
Robert Hofmann (Kiel University, Institut for Prehistoric and Protohistoric Archaeology)

14:30 Feathergrass in the vase and Sanduri wheat in the field – Environment and land use in the Bordos microregion after the botanical record 
Aleksandar Medović (Museum of Vojvodina, Novi Sad, Serbia)

14:50 Discussion

15:30 Bronze Age Settlement and Society along the Danube in Central Hungary 
Gabriella Kulcsár (Institute of Archaeology RCH HAS)
From Tells to settlement systems: Landscape and networks along the Danube and the Tisza from the Neolithic to the Bronze Age

**Keynote speakers:** W. Parkinson (Field Museum of Natural History and University of Illinois at Chicago), D. Borić (Columbia University, New York City)

**Session organizers:** M. Savu*, R. Staniuk, R. Hofmann, J. Müller

*corresponding chair, msavu[at]gshdl.uni-kiel.de

Prehistoric societies along the Danube and Tisza are consistently divided based on conventional periodization systems, which limits the possibilities of investigating long-term trajectories of human development in specific environmental transects. We refer here to aspects such as the re-occurrence of settlement mounds between the Neolithic and the Bronze Age, the identification of the complex mechanisms leading to their formation, as well as the degree of their intentionality. The prevalence of period-based research methodologies and interpretative framework also affects the comparative investigation of settlement systems and of their socio-economic setting.

We believe that in order to achieve a deeper understanding of long-term historical processes, it is important to address problems in a comparative and diachronic manner, and shift the discussion towards households, population processes, economic strategies, power structures, and networks.

We would like to ask questions such as:

- How did the previous generations set the trajectory of the subsequent ones?
- To what extent are the economic structures dependent on the landscape potential?
- How are population processes related to the formation of human societies?
- How can we address the emergence of power structures and can we really connect them with certain settlement types?

We especially encourage papers focusing on aspects such as those mentioned above and involving research which applies multi-proxy methodologies.

Against the state: Prehistoric landscape histories in the Lower Danube Basin

**Keynote lecture:** Dušan Borić (Columbia University)

This paper takes a long-term perspective in understanding the patterning of continuities and discontinuities in regional settlement histories along the Lower Danube Basin. This evidence is then examined in relation to landscape affordances, population...
demography, and elements of both continuities and changes in documented cultural traditions. Mesolithic, Neolithic, and Copper Age settlement histories are covered. The paper examines to what extent the establishment of autonomous enclosed villages as the characteristic of the Late Neolithic and later periods in this and adjacent regions follows an assumed cross-cultural generalization based on the postulates of the Agricultural Demographic Transition model. Like in many other parts of the world, in the Lower Danube Basin, there are important differences in the archaeological visibility of settlement and burial evidence throughout the periods being considered.

Several theoretical models have been suggested to account for these variations and the fluctuations in periods of aggregation and disaggregation linked to emphasis on social “complexity” and “simplicity”, or demographic “booms” and “busts.” A suggestion will be advanced that one of the reasons for the lack of evidence for the emergence of institutionally stratified societies or the formation of early states in this region could be sought in the existence of centrifugal social forces, linked to a possible role of institutionalized inter- and intra-group/settlement violence that might have served as a mechanism for maintaining a desired social equilibrium. Such a perspective aims to destabilize the stadial social evolutionary view that still dominates our grand narratives.

Agricultural Demographic Transition model. Like in many other parts of the world, follows an assumed cross-cultural generalization based on the postulates of the Topography of Hungary) and by numerous regional research projects in the last fifty years. The development of these systematically collected, regional-scale, datasets is to encourage the establishment of long-term, collaborative, regional research projects that employ similar methodologies, permitting the comparison of long-term cultural trajectories within and between different regions. There are real challenges to carrying out such ambitious, long-term, collaborative projects, especially with regards to fun- ding, but the various benefits to the field make the development of such projects worth the effort. Recent research into the organization of tell-based Neolithic sites in the Carpathian Basin demonstrates the impact long-term, collaborative, projects can have on our understanding of prehistory.

For Comparative, Long-Term, Collaborative, Regional Research in European Prehistory

Keynote lecture: William Parkinson (Field Museum of Natural History and University of Illinois at Chicago)

Since its inception, scholars of European prehistory have taken up the difficult task of writing comprehensive, continental-scale, syntheses that describe and explain the rich, deep, ar- chaeological record of the European continent. More than any other place in the world, as a result of the long history of systematic research, Europe has been the focus of synthetic monographs that either focused on specific temporal periods or on the long-term, diachronic, evolution of cultures on the continent. Most of these synthetic works, however, were based on the sequences from a few specific sites, creating a dialectical tension between, on the one hand, a desire to create broad, comprehensive syntheses and, on the other hand, a need for detailed, systematic, research grounded in site-based sequences. This historically schizophrenic tendency in European prehistoric studies (Parkinson 2018) has been offset by the regional-scale datasets that have been created by some national programs (e.g., the Archaeological Topography of Hungary) and by numerous regional research projects in the last fifty years. The development of these systematically collected, regional-scale datasets is beginning to create an analytical framework that permits the comparative study of cultural trajectories at the regional scale. But the comparison of regional trajectories is hindered by several factors. The diversity of geographic environments, research foci, and research techniques employed throughout Europe make the comparison of datasets collected by different projects difficult, if not impossible. And some, for whom the primary goal of archaeology is solely to document and preserve national or ethnic cultural heritage, simply do not see the theoretical value in regional comparisons.

One productive way to build upon the successful development of individual regional datasets is to encourage the establishment of long-term, collaborative, regional research projects that employ similar methodologies, permitting the comparison of long-term cultural trajectories within and between different regions. There are real challenges to carrying out such ambitious, long-term, collaborative projects, especially with regards to funding, but the various benefits to the field make the development of such projects worth the effort. Recent research into the organization of tell-based Neolithic sites in the Carpathian Basin demonstrates the impact long-term, collaborative, projects can have on our understanding of prehistory.

Neolithic tells as spaces of memory. Place-making and ‘efficacious ancestors’

Alexandra Ion (Institute of Anthropology ‘Francisc Raineri’ & McDonald Institute for Archaeological Research)

Drawing from the results of the DivMeanBody project, my talk aims to engage with two inter-related key questions raised by the organizers of this session: what is the degree of the tells formation intentionality, and what is the nature of the link between generations? To explore these, I will look at evidence presented by human remains discovered in Neolithic tells in the Balkan area, with a focus on those from SE Romania. These settlements have yielded collections of disarticulated/fragmentary/scattered human remains. Given its broad time span, ap- parent uniformity on a large geographical area and across multiple prehistoric cultures (from Southern Romania to northern Greece), studying this depositional practice is key to under- standing the context which shaped the beginnings of settlements, agriculture and the Neolithic way of life in Europe. The most common interpretation in the case of the fragmentary dead is to see them as ‘secondary depositions’, or even as discarded body parts (tertiary de- posits), the implicit narrative being that they are a form of deviant, non-burial type of dis- coveries. Instead I would argue, the opposite is happening here – keeping these body parts is the important part of the funerary process. Furthermore, their presence among the living points to the intentionality of tells formation, part of a strategy of place-making of these past communities, both in a physical, and ‘sacred’ sense. At the same time, by looking at what happens with these human remains, an argument can.
be made that temporal distances on tells gain a different value through the present materiality of the dead from the past, and the associated archaeological materials; their manipulation becomes a means through which the past can be referenced, thus creating an inter-generational dialogue. Therefore, my claim will be that in order to understand better the formation of tells, and also the treatment of their dead, we need to rethink the depositional context themselves — what tells are-, and instead of assuming that these are settlements which happen to contain bodies (and body parts), a different situation is more probable. As I will show through revisiting osteological and taphonomic data, as well as the associated archaeological materials and contexts, we can safely argue that at least some tells are a special kind of Neolithic feature, collapsing the distinction between the archaeology of settlements and funerary archaeology, between the sacred and domestic. Thus, in order to grasp their complexity we need to adapt our previous models which have been informed by modernist dichotomies, towards finding new questions to engage with multi-disciplinary data.

The lithic procurement and production activity in the Late Neolithic period in the south part of Transdanubia
Károly Szilágyi (Móra Ferenc Museum, University of Szeged)

Starting from an analysis of the 6200 chipped stone tools of the Late Neolithic Alsónyék–Bátaszék site (questions, related to main raw material used: the Mesek radiolarite: 1. What were the criteria of selection and strategies of procurement of the knappable lithic raw materials? 2. What production methods can be identified in connection with the use of the local raw material at Alsónyék and in the Southeastern group of the Lengyel culture? 3. Which were the Late Neolithic sites in the Great Hungarian Plan where the Mesek radiolarite appeared? 4. What was the value of this radiolarite type in Transdanubia and Great Hungarian Plan? 5. What kind of exchange network was connected to the Mesek radiolarite? 6. Can we reconstruct the distribution routes of this radiolarite? Beside the presence of trans-regional flints, the greatest quantity of the lithic raw material in Late Neolithic in Transdanubia and the Great Hungarian Plain is radiolarite from the East-Mecsek Mountains. This is a raw material of good quality and available in sufficient quantities to cater the raw material demand of the region. The geological sources of this radiolarite were located very close to Alsónyék. The patterns of raw material distribution, indicate very strong local networks around the Alsónyék site. This tendency is very similar the contemporaneous Lengyel settlement like Zengővárkony, Pécsvárad–Aranyhegy, Lengyel–Sánc, Villánykővesd and Mórágy–Tűzkődomb also.

On the Northern ’Periphery’ of Tells – New perspectives in Neolithic Settlement Network Analysis in North-East Hungary
András Füzesi (Eötvös Loránd University)

The Upper Tisza region is well known to international Neolithic research since the 1990s. The region’s first investigated archaeological site was Polgár-Csőszhalom, which has retained its prominent role to this very day. The settlement is not only the northernmost tell in South-East Europe, but is a most unusual site with its special enclosure system, its tell and the associated 61 hectares large single-layer settlement. Its archaeological material, whose assessment was begun in 2012 by the Neolithic research team of the Eötvös Loránd University, provided evidence for the northern (Samborzec) and western (Lengyel) connections of the local community. The importance of region was recognised by John Chapman, who with his colleagues analysed the settlement history of north-eastern Hungary. The Upper Tisza Project (UTP) incorporated several micro-regions, including Polgár Island, the broader catchment area of the Polgár-Csőszhalom site. In his report of the project’s initial results, Chapman emphasised the social power reflected in settlement concentration and the importance of local conditions in the emergence of tells. Our researchers team undertook systematic field surveys in 2007 and for several seasons since 2012. These surveys covered not only Polgár Island, but also other micro-regions to its south (Tisza-UGC) and north (Tiszadob Upland). Thus, we have data on the Neolithic settlement network of a 36 km long territory along the Tisza River. These investigations enable us to draw a new picture, not only because of a wider spatial perspective, but also owing to the changes in research methods and the findings of other projects on the Great Hungarian Plain. My presentation demonstrates the new results of studies on the Middle and Late Neolithic settlement network in the Upper Tisza region. The transformation of local Neolithic communities could be studied in a much more complex way by using the data from the excavations too. The geographical conditions determining human settlement have a mosaic patterning in the study area. The former meanders of the Tisza Rivers and fragmented loess surfaces rising above the floodplain form the natural basis of the micro-regional units. The geographical units (Polgár Island, Tiszacsege Island, Tiszadob Upland) are loosely related to each other and provide the
overall framework of the analysis. Based on the available data, I strove to construct a model of settlement history, in which the long-term interactions between, and transformations of, the landscape and the human communities were interpreted in the context of the diversity of local variants.

Aspects of Tisza cultural processes as reflected in ceramic assemblages at Öcsöd-Kovásha-lom (Hungary)

Pál Raczky (Eötvös Loránd University)
Co-author: András Füzesi (Eötvös Loránd University, fuzesia@gmail.com)

In our presentation, we discuss the different general cultural processes of the Tisza culture as reflected in the ceramic material. Our springboard was the Late Neolithic tell-like settlement of Öcsöd-Kováshalom: the cited examples come from the ceramic assemblages excavated at this site and from the associated intrasite and regional phenomena. Over 80,000 ceramic sherds were recovered from two consecutive occupation levels. The ceramic material included 268 intact or refittable vessels. The assemblage consisted of diverse, but nevertheless well-definable form types, whose profile and proportion as well as their sizes represent a specific range. The ornamentation and the diachronic changes in decorative motifs and designs reflect the process of how the Late Neolithic Tisza style emerged in the context of a tell-like settlement complex. Questions of local ceramic production and pottery use are discussed only in brief. The technological analysis of the ceramic material based on thin sections is still in progress. Artefacts are directly associated with the environment through their material. Our technological and functional analysis principally focused on the role of ceramics in social practices. Reflecting on the triple functional categories of storage, processing and consumption, we examined the spatial patterns of different vessel types (storage jars, jugs and bowls). Face pots, representing a special storage jar type, embody the entanglement of community usage and community symbolism. Finally, we present a few examples of how social relations are possibly reflected in ceramic decorative styles. Different elements of style (motifs, patterns, decoration structures and decorative techniques) are suitable for mediating social relationships within and between groups. Representations of different levels of individuals, households and communities appeared on the surface of decorated vessels, which were ancient message boards inscribed by the creators of the physical and mental landscapes around the Late Neolithic tell-like settlement of Öcsöd-Kováshalom.

Death on the tell. Human remains from Neolithic settlement mounds on the Great Hungarian Plain

Alexandra Anders (Institute of Archaeological Sciences, Eötvös Loránd University)

The settlement network of the Hungarian Plain during the Late Neolithic (5100/5000–4600/4500 BC) was made up of settlements occupied for various lengths of time that were located along the winding rivers and streams, the Tisza, the three Körrós and Berettyő rivers and their tributaries. The settlements include tells, tell-like settlements and single-layer settlements, some of which emerged in association with tells, some independently of them. Tells are regarded as special locations in the life of prehistoric communities, the setting of major community actions such as the construction and deliberate burning of houses and communal feasting. These ritual activities served to glue the community as well as to maintain and ensure the continuity of social remembrance. At the same time, tells were also the settings of mortuary rites: even though several burials and disarticulated human remains have been brought to light on tells, these were accorded little attention in archaeological scholarship. Discussed here are 300 burials from 13 sites, alongside a more detailed overview of the new findings of biosocial archaeological and spatial analyses covering the sites of Öcsöd-Kováshalom, Be- rettyőújfalu–Herpály, Hódmezővásárhely–Gorzska, Polgár-Csőszhalom and Polgár-Bosnyák-domb. How do the dead appear in the context of tells? How did burials structure space? Were the burials furnished or not? Who were buried on tells, when were they interred and where? Who were buried on the tell and who on the single-layer settlement? What were the main considerations when making these choices: age, sex/gender, wealth or some other factor? Whom or what did they represent? How were burials linked to the world of the living? Are there any similarities and/or differences in how bodies were treated in different locations and sites? The project is funded by a grant from the National Research, Development and Innovation Office (Grant no. K124326).

Origins of households at Neolithic and Bronze Age tell settlement complexes on the Great Hungarian Plain

Paul R. Duffy (The Archaeology Centre, University of Toronto)
Co-authors: William A. Parkinson, Attila Gyucha and Richard W. Yerkes

Tell settlement complexes emerged, and then collapsed, in both the Neolithic (5000-4500 BC) and Bronze Age (2000-1500 BC) on the Great Hungarian Plain. Remote sensing and surface collection over the past twenty years accompanies the study of many of these sites, and the spatial scale of tell settlement complexes in both periods is remarkable. Though the duration of these settlements is sometimes short, population
estimates suggest in some cases populations over a thousand. While the timing and extent of these tells is increasingly under scrutiny, two dimensions of these social trajectories are commonly left out. First, the source of the incoming populations to tell settlement complexes for either period has not been adequately scrutinized, and we often do not have a sense of whether population growth is most plausibly attributable to in situ demographic growth, localized aggregation from people in the micro-region, or incoming populations from the wider area. Second, the catalysts and benefits of population aggregation at the household level have been widely overlooked. The costs and the benefits—or the ‘pulls’ and the ‘pushes’—of settlement aggregation on the Great Hungarian Plain are surely varied, but case studies of settlement aggregation from outside of the Carpathian Basin can be useful models for thinking about why the process of aggregation occurs, and why it eventually ends. In this paper we look at two cases of settlement aggregation from the Körös region of eastern Hungary—one from the Neolithic (Szeghalom-Kovácshalom) and one from the Bronze Age (Békés-Várdomb)—to explore the extent to which tell settlement complexes may have drawn populations from their immediate micro-regions. Second, we visit several case studies to explore the reasons why households of more egalitarian societies seem to accept unprecedented village densities, at least in the short term.

Early neolithic settlement systems along the lower Mureș/Maros river valley
Lennart Brandstötter (University Tübingen), PhD student
Co-authors: Raiko Krauß (University Tübingen) Dan Ciobotaru (Museum of Banat, Timișoara)

Since 2009 investigations in the area of the lower Mureș river in Banat (Romania) were conducted by the Eberhard Karls University Tübingen and the Museum of Banat in Timișoara. This expeditions gained new insights in the establishment of the first neolithic settlements in this region. First results for the location of the settlements revealed a clear preference to former river systems, which are detectable in satellite imagery and geophysical prospections. Archaeozoological research shows proof for reveled a clear preference to former river systems, which are detectable in satellite imagery and geophysical prospections. Archaeozoological research shows proof for the importance of aquatic resources and sheep/goat stockbreeding. The cultivation of cereals has been established beside some smaller traces of gathered wild plants. Our presentation will mainly focus on the work on the site Bucova Pusta IV, but will include some preliminary results from the site Movila lui Deciov. Based on our research, we will show that the structure and the economy of this early neolithic settlements north of the Balkan peninsula seems to be different from the better studied early neolithic settlements in the south.

Environmental setting, settlement dynamics and land use in the Bordőš micro-region in the Serbian Vojvodina from the Neolithic to the Bronze Age
Robert Hofmann (Kiel University, Institut for Prehistoric and Protohistoric Archaeology)
Co-authors: Fynn Wilkes, Stefan Dreibrodt, Aleksandar Medović, Tijana-Stanković-Pesterac, Ildiko Medović, Sarah Martini, Martin Furholt

Since 2014 in a Serbian-German cooperation comprehensive field work has been carried out at the spatial scale of a micro-region (20 km² in size) near the town Novi Bečej on the downstream section of the Tisza River in the Serbian Vojvodina. In the focus of the research are the complex settlement hotspot Bordőš and the socio-environmental dynamic of Neolithic settlement systems. However, surveys and archive studies provided also data for other periods. Our field activities included archaeo-magnetic and geoelectric surveys, core drillings, surface collections and targeted excavations. In our paper the first attempt of a synthesis regarding environmental setting, settlement history and land use is made in a long-term perspective.

Feathergrass in the vase and Sanduri wheat in the field — Environment and land use in the Bordos micoregion after the botanical record
Aleksandar Medović (Museum of Vojvodina, Novi Sad, Serbia)
Co-authors: Robert Hofmann, Fynn Wilkes, Stefan Dreibrodt, Tijana-Stanković-Pesterac, Ildiko Medović, Sarah Martini, Martin Furholt

There is a big difference in scope/diversity-index between macrobotanical assemblages from Neolithic and Bronze Age sites in the south-eastern part of the Pannonian plain. The species-rich and abundant Bronze Age collections are opposed by low-pool samples for the Neolithic period. Scarce archaeobotanical records from Eneolithic period makes the possibility of investigating long-term trajectories of crop husbandry development in this area even more difficult. Nevertheless, new archaeobotanical research at late Neolithic sites from Serbia, Hungary and Romania (Bordos site-complex, Hódmezővásárhely-Gorzsa and Uivar) has brought some new insights into the composition of main crops (e.g. cf. Triticum timopheevii and T. spelta), harvesting activities (e.g. Scleranthus annuus) and growing and gathering activities (e.g. Abutilon theophrasti and Chenopodium polyspermum). Latest research at Bordos and its neighboring sites suggests that the prevailing vegetation of on black earth-covered loess plains of the Tisza during late Neolithic was steppe (e.g. Stipa) while the forest was growing in the floodplain of the Tisza.
Bronze Age Settlement and Society along the Danube in Central Hungary

Gabriella Kulcsár (Institute of Archaeology RCH HAS)

The presence of fortified multi-layer/tell/tell-like settlements is an important characteristic of the late Early Bronze Age and Middle Bronze Age (according to Hungarian terminology, ca. 2300/2200-1500/1450 BC) of the Carpathian Basin. The aim of this paper is to review the available evidence on these settlements in central Hungary, and to describe and give a preliminary analysis of Middle Bronze Age settlements and settlement patterns along the Danube and in the Danube-Tisza interflue, especially in three smaller areas on the right and left bank of the Danube. We discuss previous views on the significance of Middle Bronze Age fortifications, attempt to deconstruct the preconceptions they had been built upon and put forward a few preliminary observations upon which further research can be based. The study of Early and Middle Bronze Age tells and fortified settlements can provide invaluable information on social, economic and political developments in the period. Nevertheless, we have to emphasize that due to this focus on larger centres, research has become biased. Such settlement studies can be fruitful only if smaller, outlying villages, hamlets, farms and off-site locations with cultural remains are also investigated. The picture that emerges from this review is that of great variability in terms of settlement forms, locations and relationship between settlements. We have to differentiate between various types of sites in terms of fortification, position within local and regional settlement hierarchies, etc. Issues such as the differences between the thickness of the sequence of layers of the sites that had been occupied for the same time-span must also be taken into consideration, since they indicate different modes of habitation, house destruction and abandonment, and the accumulation of settlement debris. We think that the study of Bronze Age settlement and society in Hungary has reached a point where it needs to open a new chapter in research. A more mature theoretical background and the launching of a series of carefully planned, systematic microregional projects will hopefully provide a host of new information and exciting interpretations that will shed new light on a crucial period and area in European prehistory. In this presentation, we review the latest results of the past 10 years in Central Hungary.


Knut Rassmann (DAI)

Co-authors: Johannes Müller, Pál Raczky

Investigation of the periphery of tell settlements and the surrounding landscape is not new, but still far from standard practice. The high potential of such an integrative perspective, which sets the tell in the context of the surrounding landscape is emphasized by studies in Okolište and in the Körös region. The research in Okolište and adjacent Visoko-Basin made evident the mutual relationship between the main settlement, the local landscape and surrounding settlements.

By the application of large scale magnetic prospection, multispectral images, surface collection and drilling programmes in combination with soil chemistry we have obtained important data on the tells and their periphery, as well as relevant parts of the local landscape.

Our fieldwork is focussed on exceptional tell sites in the eastern Pannonian Basin with valuable excavation results. Comparison of excavation data is on one hand relevant to understand anomalies in the prospection data and on the other hand to understand the chronology of the sites. The latter might be augmented in the future by a specifically designed dating programme. And finally the analysis of the excavated finds, including archaeobotanical and archaeozoological samples is crucial to reconstruct sociocultural and economic aspects.

An essential part of our project is to bring the new prospection data, landscape information and fundamental excavation data together in a GIS-database. The analysis of the information in one normalized data space is fundamental to reconstruct settlement patterns on different scales and to compare the history of the different sites from a structural perspective.

“Kakucs-Turján – a Bronze Age multi-layered site or a multi-layered settlement system?”

 Mateusz Jaeger (Adam Mickiewicz University in Poznań; Institute of European Culture)
 Co-authors: Robert Staniuk, Gabriella Kulcsár, Sofia Filatova, Jakub Niebieszczański, Nicole Taylor

The Hungarian Bronze Age (ca. 2700-1600 BC) is characterized by diversified settlement systems unified by the presence of multi-layered sites, the largest of which are classified as tells. Regardless of the variety of environmentally distinct areas, such settlements remain a constant feature of the landscape. While the numbers of and location of sites vary from period to period, with the largest number of sites associated with the Bronze Age, the normative categorisation of all large settlements as tells remains an obstacle in the consideration of social processes happening in the second millennium BC and their temporal dynamics. Since the focus of Hungarian Bronze Age research is generally based on implied notions of centrality, the understanding of the settlements which make up settlement patterns is restricted to only small parts of large sites, which affects the possibility of investigating intra-site variability. Differences in the formation of the archaeological record, understood as both the stratigraphic
record and the material culture deposited in the archaeological features, are usually not dis- cussed and the big picture of the Bronze Age reality remains obscure. In order to address some of the outlined issues, this presentation focuses on the results of the excavation campaigns carried out between 2013-2017 on the settlement in Kakuc- Turján. By presenting and com- paring the habitation practices between the excavated areas, the paper aims to provide an alternative and scientific argument countering the normative consideration of settlements in the Early and Middle Bronze Age in the Carpathian Basin, by highlighting the importance of applying a targeted, bottom-up methodology for the reconstruction of settlement histories.

The organisation of life on an European Bronze Age tell: reflections from Szazhalombatta- Foldvar

Marie Louise Stig Sørensen (University of Cambridge)
Co-authors: Magdolna Vicze, Joanna Sofaer

Our ideas about the organisation of Bronze Age tells in Europe - ‘the tell-way of living’ - is largely based on inferences rather than factual evidence. This is partly because the material correlates of ‘social organisation’ are difficult to identify and agree to and partly it is due to the character of many earlier excavations which paid limited attention to the evidence of life suspended between horizons of floors. Instead, our ideas of life on tells were informed by evidence from tells in the Near East, well preserved and extensively excavated Neolithic tells in Europe, and also sharpened around mega narratives about the European Bronze Age. With several ongoing projects investigating Bronze Age tells through advanced methodologies we can now begin to reassess how well our existing ideas match the evidence in the ground. In this paper we ask whether we can get closer to an understanding of how these settlements ‘functioned’ – what kind of social organisations and mechanisms were in place to make this form of settled life possible. Based on evidence from the excavation of Szazha- lombatta-Foldvar we shall consider this question from a number of angles, including evidence of relations external to the site, attitudes to space and dirt, and some of the characteristics of pottery production and use that ground this material in the local.

Diachronic isotope studies on economy and changing social structures of the Early Bronze Age settlement Fidvár near Vráble, Slovakia

Frank Schlütz (Lower Saxony Institute for Historical Coastal Research, Wilhelmshaven, Germany)
Co-author: Felix Bittmann (Lower Saxony Institute for Historical Coastal Research, Wilhelmshaven, Germany)

One of the largest Early Bronze Age settlements of the Pannonian Basin is Fidvár near Vráble situated in the Southwest of Slovakia. It is located in a landscape with fertile loess soils near to the ore rich Carpathian Mountains. Inside this fortified settlement, central and peripheral households have been excavated. Their extensive archaeobot- tanical remains were studied and isotope analyses done on more than 1000 cereal grains, allowing detailed spatial and diachro- nic reconstructions. While some of the samples representing storage contained hundreds and thousands of cereal grains, others are very poor in finds. Nevertheless, nearly all samples are dominated by Emmer (Triticum dicoccum) accompanied by some Einkorn (Triticum monococ- cum). The isotope signatures vary considerably both between samples and cereal taxa. It seems that Emmer and Einkorn were mostly cultivated together, but on some fields, Einkorn was most important. Between the households and through the time a change in the quality of the available fields is obvious. This allow narrowing down the possible reasons for the end of the settlement. It was not field deterioration.

Settlement Systems from the Early Neolithic to the Early Bronze Age
North of Carpathian Basin

Slawomir Kadrow (Institute of Archaeology, Rzeszow University, Poland)

The aim of the paper is the reconstruction of settlement processes and settlement systems in the perspective of a long duration, i.e. in the time of four thousand years (from the middle of the 6th to the middle of the 2nd millennium BC) in SE Poland (Lesser Poland). At that time, the entire sequence of Neolithic, Eneolithic and Early Bronze Age archaeological cultures develop- ed north of the Carpathians (LBK, post-LBK, Lublin-Volhynia culture, TRB, Baden, Globular Amphorae, Corded Ware and Mierzanowice culture). There are analyzed, among others, trajectories of changes in the size of settlements, their location in relation to specific lands- cape zones, internal arrangement of settlements, construction features and size of dwellings, relation of burials and cemeteries to settlements, etc. Then they are compared with the trajec- tories of changes of relevant categories of settlement studies in the Carpathian Basin. A diffe- rent rate of changes in the processes mentioned above in different regions but characterized by a similar natural environment was observed. This may indicate that the settlement behavi- ors and processes were co-shaped by environmental (climatic) factors along with socio-eco- nomic ones. For this reason, attention should be paid to specific periods and places where symptoms of crises (inequal- ities and conflicts) can be observed. They could, although not al- ways have, influence the course and intensity of processes and determine at least some of the socio-cultural changes. Tracking the sequence changes of many archaeological cultures allows to identify those moments of change in which the continuation or transmission of the tradition of local and/or foreign communities played a significant role.
The eastern alternative to tells: Tripolye mega-sites in the Southern Bug-Dnieper interfluve in light of recent radiocarbon dates


This paper aims to analyze the Tripolye giant-settlements (also known as Tripolye mega-sites) and their settlement systems in the Southern Bug-Dnieper interfluve in reference to the most recently obtained radiocarbon data. By discussing the agglomeration and dispersal of the Western Tripolye and Eastern Tripolye populations in space and time, as well as their patterns of mobility and subsistence, we hope to provide a wide comparative framework for the different trajectories of spatio-demographic development in prehistoric Europe observed during the interval of 4300 – 3000/2950 BC. Our paper addresses several specific issues. What was the duration of the Tripolye giant-settlements? Were there any differences between the formation and development of the Western Tripolye and Eastern Tripolye mega-sites? How did the interactions between populations of those units influence the related material culture across sites? Finally, what were the mechanics of the eastern waves of advance that produced these settlements, and how are they manifested in the material record from 4300 until 3000/2950 BC?

Answering archaeological questions with (quantitative) geoarchaeological methods – examples from a transect of tell sites, Anatolia to central Europe

Sarah Martini (Institute of Pre- and Protohistoric Archaeology, CAU-Kiel) Co-author: Stefan Dreierbrodt, Knut Rassmann

Tells and multi-layered settlements form important nodes in the cultural landscapes of a large part of the Eurasian continent from the Neolithic period onwards. As mounds formed by the accumulation of architecture and debris resulting from continuous habitation of the same area, the layers of sediment making up a tell are invaluable records of the interaction between cultural and natural processes for geoarchaeologists. As these sites are often occupied for an extended period of time, they also provide the opportunity to examine these processes from a diachronic perspective. Furthermore, given their wide spread across Eurasia, they offer a chance to compare and contrast the behaviors that eventually led to the formation of this type of “similar” sites. In this paper, we compare the results of qualitative and quantitative geoarchaeological analyses of eight tell or tell-like settlements that were occupied for varying intervals from the Neolithic through the Roman Iron Age and that make up a transect from Anatolia to Central Germany. Questions addressed include: What similarities and differences are visible in the geochemical and geoarchaeological signatures in these sites and how might they be connected to human behaviors? Are these similarities smaller or larger than would be expected given the vast differences in environmental setting along this transect? And, how might the analysis of sediments be used to expand archaeological knowledge and help untangle the complex knot of cultural and natural processes that lead to the formation of a tell? In answering these questions, the possibilities and weaknesses of the application of a novel quantitative approach is also discussed.

POSTER SESSION: People, landscape and diachronic choices. New insights regarding Gumelnita tell settlement (Romania)

Cătălin Lazăr Co-authors: Adrian Balasescu, Valentin Radu, Mihaela Golea, Mihaela Danu, Cristina Covataru, Adrian Serbanescu, Alfred Vespermeanu-Stroe

1 ArcheoScience®RO, Research Institute of the University of Bucharest (ICUB), University of Bucharest, Romania; catalin.lazar@icub.unibuc.ro 2 Institute of Archaeology “Vasile Pârvan”, The Romanian Academy, Bucharest, Romania 3 National History Museum of Romania, Bucharest, Romania 4 “Al. I. Cuza” University of Iași, Iași, Romania

The tell settlement from Gumelnita (or “Măgura Gumelnița”) is the eponymous site of the Eneolithic civilisation with the same name. It is probably the biggest tell settlement North of the Danube, and it belonged to the Kodjadermen - Gumelnita - Karanovo VI civilisation that occupied in the Balkan area in the second half of 5th millennium BC. The current paper will investigate the complex interface between the human community that lived at Gumelnita, and their socio-economic setting in correlation with the landscape, Danube River, available raw materials and the environment, but also its position in the regional networks. In order to identify the particular history of those past people, our analysis will include a focus on the integration of the archaeological, geoarchaeological, zooarchaeological, and archaeobotanical data, and their correlation with topographical, GIS, remote sensing information, and chronological data. In this manner, we will be able to set the diachronic choices of these populations correlated with different general or particular constraints. Furthermore, this approach will allow us to explore the development degree of local communities from Gumelnita along the 500 years in terms of multiple land-use (e.g. for habitation, burying the dead, other economic activities), exploitation of the environment (natural resources) and human impact, but also their integration in the existing exchange networks from the Balkans. This work was supported by two grants of the Romanian Ministry of Research and Innovation, CCDDI – UEFISCDI, projects number PN-III-P1-1.2-PCCDI-2017-0686 and PN-III-P4-ID-PCE- 2016-0676, within PNCDI III.
Poster Session: Fishing on the Lower Danube during the 5th millennium BC. Was it specific only to the settlement mounds?

Mihaela Savu (Graduate School Human Development in Landscapes)

Settlement mounds, also known under the term tells, have been more than a century in the focus of researchers studying various aspects, from social stratification to different innovations. For the Lower Danube, the 5th millennium BC is often seen as a time of change, when copper metallurgy emerges, alongside the tells, and furthermore, certain cultural and economic shifts. In the said region, besides the domesticated plants and animals in the preceding Neolithic, during Copper Age, many sites show a renewed importance awarded to wild resources, aquatic fauna included, with a special stress laid upon large taxa in fish (e.g. catfish with an average of 1m in length). This has been interpreted as a necessity in order to increase food supplies, due to a growing population, especially in the tell settlements. But was this indeed a uniform trend and chiefly occurring in tells or did it suffer particularities? The exploitation of water faunal resources implies at least a minimal knowledge of faunal behaviour and an understanding of the environment. This would determine the employment of certain kinds of tools and techniques, more or less specialized. The lots of faunal material retrieved from the archaeological sites are partly indicating which techniques are suitable in capturing different species. Along with the zooarchaeological material, various implements made on different supports (wood, fibres, osseous material, copper, stone, ceramic), indirectly confirm the practice of fishing. The occurrence of this kind of artefacts tends to be more intense for the Copper Age period in the Lower Danube region. Based on this information, the aim of the study is to acknowledge the contribution of fishing to the economy of the Neolithic and Copper Age sites, as well as the potential effort involved in the whole process, from producing the necessary instruments to bringing back the prey. My main interest is the comparison of aspects from settlement mounds to those in contemporaneous flat settlements. Although my focus will be on the Lower Danube region, I am aiming at a parallel with the area along the Tisza valley, where analogous objects, linked to the practice of fishing have been discovered, and to explore the context under which they occur.
Complexity in archaeology – Diachronic transformations of complex networks and theoretical aspects of complex systems

Tuesday March 12th, Room 209

Session organizers: Oliver Nakoinz, Jan Eric Schlicht, Martin Hinz, Daniel Knitter, Liang Yang, Timothy Kohler

08:30 Applying Complex Adaptive Systems Approaches to the Global Archaeological Record

Keynote lecture: Stefani Crabtree (The Pennsylvania State University and the Center for Research and Interdisciplinarity)

09:00 Complexity models in archaeology: the shadow of determinism
Artur Ribeiro (Kiel University)

09:20 Complexity-tinted Glasses: Some Ideas for a different Perspective on theoretical Discourse in Archaeology
Jan-Eric Schlicht (Institute of Pre- and Protohistoric Archaeology, Kiel University)

09:40 Discussion

10:30 A multidisciplinary and multiscale approach to study the network of a capital and its hinterland: Ravenna in the last two millennia
Federico Zoni (University of Bologna)

10:50 Representing complexity, communicating relations. Network analyses of ornamentation on twenty pottery vessels from the Sarup causewayed enclosure on Funen, Denmark
Rie Bloch (Aarhus University)

11:10 Flint artefacts as a social media in Neo-Eneolithic societies of North Pontic region during VI-V mill. BC
Dmytro Kiosak (Odessa I.I. Mechnikov National University)

11:30 Transformations in settlement structures and distribution systems in the Neolithic Moravia
Petr Pajdla (Department of Archaeology and Museology, Masaryk University, Brno)

11:50 Discussion

13:30 Trade has social impact! Why we need to rethink „distribution“ in the Bronze Age
Lennart Linde (Goethe Universität Frankfurt)

13:50 Settlement scaling theory and the Roman Empire
John Hanson (University of Reading)

14:10 Social complexity and complex societies in Iron Age
Oliver Nakoinz (Institute of Pre- and Protohistoric Archaeology, Kiel University)

14:30 Discussion

15:30 Styles, Pottery and Complexity at the Swiss Plateau. Neolithic ceramic production and consumption 3900-3500 BCE
Martin Hinz (Institut für Archäologische Wissenschaften, Universität Bern)

15:50 Where innovations come from?
Aleksandr Diachenko (National Academy of Sciences of Ukraine, Institute of Archaeology)

16:10 Discussion (including Summary by the Organizers)
Complexity in archaeology – Diachronic transformations of complex networks and theoretical aspects of complex systems

Keynote speaker: S. Crabtree (Pennsylvania State University)
Session organizers: O. Nakoinz, J. Schlicht*, M. Hinz, D. Knitter, L. Yang, T. Kohler
*corresponding chair, oliver.nakoinz(at)ufg.uni-kiel.de

Studies of complex systems and their inherent specific characteristics are rapidly developing in archaeology. Of particular interest are (a) the rules governing the development of such systems over long periods; (b) how archaeology's heterogeneous and sparse data can be integrated into complex system modelling; (c) how this epistemological approach can be included in the canon of theoretical approaches currently being pursued in the discipline (e.g. agency, materialism, speculative realism) and in the increasing sovereignty of scientific disciplines to explain (pre)history; (d) whether the discipline benefits from dealing with complex systems at all, or whether it is just short-term hype and a new buzzword. This session focuses on complex networks – which are a type of reduced model of complex systems, and hence seem to be easier to apply in archaeology and anthropology – as well as on the theoretical background of complex systems, which could be enriched by different flavours of network theories. The integration of complex systems and network theories should encourage exploration of the implications, perspectives, and limitations of complex networks in the overlapping fields of ethnography and archaeology.

With this session we aim to provide an overview of the state of the art, new developments, and thoughts stemming from reflection on and application of complex systems theory in archaeology. We invite contributions from all archaeological and anthropological disciplines dealing with questions like:

- What can simulations of emergent phenomena of long-term processes in landscape archaeology and social archaeology contribute to understanding transformations?
- Are complex networks adequate models of complex systems?
- How can qualitative definitions of emergence complement each other?
- Are ethnoarchaeological analogies possible under complexity assumptions?
- Can prehistory benefit from ethnomethodological case studies of complexity?
- What does agency (Latour etc.) mean in the light of complexity?

We hope for contributions from computational archaeology, papers that revolve around questions of theory, case studies, and papers developing methods. The topic of this session might also link to the sessions on maritime networks (Rutter et al.) as well as social resilience (Yang et al.).

Applying Complex Adaptive Systems Approaches to the Global Archaeological Record
Keynote lecture: Stefani Crabtree (The Pennsylvania State University and the Center for Research and Interdisciplinarity)

Archaeology is not just the study of a past that has been discarded and abandoned, it is the study of how the trajectory of humanity has led to where we are today. Modern methods can harness the explanatory power of the past to calibrate our understanding of the present and predict how we will face challenges in the future. In this vein approaches from complex adaptive systems science including agent-based modeling and network science prove particularly promising. By simulating societies in silico agent-based models and networks have enabled researchers to not only understand previously intractable aspects of the past, but also to use these simulations to predict what can make resilient societies and what lead them toward vulnerabilities to external perturbations. My work has used agent-based modeling, social network analysis, and trophic network analysis (or food web modeling) to examine robustness and vulnerabilities of societies from the American Southwest, to northern Mongolia, to Aboriginal Australians. In this talk I explore the unique ways that complex adaptive systems approaches can help us understand the lifeways of societies worldwide, and also suggest that understanding how people interacted in their uniquely challenging environments can provide parallels to understanding humanity’s position in ecosystems today. Only through applying a complexity lens can we truly understand how the actions and interactions of people led to the large overarching structures we see today.

Complexity models in archaeology: the shadow of determinism
Artur Ribeiro (Kiel University)

In a paper from 2004, Travis Stanton argued that there is little to no determinism in archaeology, except in Complexity Theory research, namely that developed at the Santa Fe Institute by Timothy Koehler (1993, 2000). Stanton claims: “The idea that a researcher can hold the majority of programmed behaviors of simulated social agents constant while “tuning” one behavior to assess its role in the decision-making process [...] unequivocally demonstrates a deterministic world-view” (Stanton 2004: 40). The issue surrounding determinism in Complexity Theory is not that straightforward and requires some elucidation. The central problem surrounding determinism in archaeology is the lack of clarity when it comes to understanding what it actually is. In the archaeological literature it is not uncommon to see the concept of determinism being confused with fatalism, or necessity. An additional problem is that of assuming actions need to denote real agency to counter determinism. This is not necessarily true: agency
can exist in a deterministic universe. Similarly, describing actors without agency does not necessarily entail determinism – it is possible to describe agents in mechanistic fashion while accepting that they retain free-will. With these ideas mind, the aim of this paper is to elucidate these concepts, and discuss whether complexity models need to denote agency, or if it is better to ignore agency altogether.


**Complexity-tinted Glasses: Some Ideas for a different Perspective on theoretical Discourse in Archaeology**

Jan-Eric Schlicht (Institute of Pre- and Protohistoric Archaeology, Kiel University)

Human interaction be it with other humans, animals or their material environment represents a broad topic which can and has been analyzed with a plethora of different tools, methods and theories addressing a multitude of aspects. Since the inception of the subjects one could subsume under the umbrella of anthropology in its broadest (modern) meaning – the study of humans – including archaeology as a means to study humans through material remains, proverbially countless endeavors seeking to explain this subject have been undertaken. Over the last decades there have been multiple paradigms in archaeological theory, each being, broadly spoken, toppled over by a new generation of researchers on the quest to gain a “better” understanding of the subject, while discarding the old ways of thinking seemed like more or less the norm. The urge to “rewind” theoretical discourse by getting rid of the old is thereby still visible, as for example with New Materialism, Post-Humanism, the Practical Turn, Spatial Turn and others. Aside the fact, that these discourses could indeed contribute new and/or valuable ideas, or even a heightened political awareness in the present age, the tendency for “revolution” might not be the ideal modus operandi to improve theoretical discourse in archaeology today. In recognizing complexity and realizing, that societies, collectives and humans in general represent complex systems with multiple layers of interaction, archaeology not only gains new fields of discourse for modeling and simulation, but also possibilities for approaching theory from another perspective. With complexity in mind, many approaches to explain the mechanics of human lifeways, materiality, behavior or large scale historicity could be integrated and possibly elevated in terms of their epistemological value. Not only that, but the subject itself might be given the chance to actually strengthen the link between natural sciences and humanities which is already a key feature of our discipline, as we walk on the thin edge between C. P. Snows famous “two cultures”. By looking through complexity-tinted glasses onto our already existing toolbox, we will have to think about certain terms and concepts like “culture”, “society”, “transformation” or “chronology” anew in order to reflect upon ourselves and to span bridges between already existing definitorial regimes, to rethink the latter and to hopefully acquire a deeper understanding of past – and today’s – humanity. This contribution is by no means intended to offer some groundbreaking feat – which it quite frankly couldn’t. But by thinking out loud and perhaps a little wild, it could maybe contribute to the larger topic within the discussion around complex systems in archaeology. Therefore this paper shall focus on different exemplary terms, such as “Agency” and “Actor-Networks” in order to discuss the aforementioned points.

**A multidisciplinary and multiscale approach to study the network of a capital and its hinterland: Ravenna in the last two millennia**

Federico Zoni (University of Bologna)

Co-authors: Marco Cavalazzi (University of Bologna), Mila Bondi (University of Bologna), Michele Abballe (Universiteit Gent), Celeste Fiorotto (University of Verona)

In this paper we aim to present different data collected since 2002 during several research projects carried out by the Bologna University and focused on the rural and urban landscapes of the city of Ravenna (Northern Italy), the capital of the Western Roman Empire since A.D. 402. The main purpose is to analyze the transformations of an urban/rural complex network through different kinds of data and methods. The areas investigated are the lowlands of Ravenna, in the southeastern part of the Po Valley, between the Apennine Mountains and the Adriatic coast; this part of the Italian Peninsula has been characterized by intense geomorphological transformations in the past. The chronological range taken into consideration is short but significant: from the Roman period to the modern era. There are four main topics selected, analyzed with different types of sources: land use and land cover, evolution of rural settlement patterns, urban identity and its significance through history and palaeoenvironmental transformations. One of the aims of the project will be to enlighten limits and potentials of using different kind of sources in the areas of interest: - Land use and land cover from XVI to XXI centuries will be investigated using historical cartography (e.g. using Pontifical Cadaster); - The evolution of the rural settlement patterns will be discussed looking at the data collected by two landscape archaeological projects, the “Decimano project” (2002-2006) and the “Bassa Romandiola project” (2009-2016); - Urban identity is well known in historical studies based on the written sources, but a different interpretation could be reached just analyzing historical evidence in relation.
to a wider network, including rural landscapes, geographic context and natural environment. The palaeoenvironmental transformations will be studied through geoarchaeological and palaeobotanical approaches (e.g. coring and macro- and microplant remains analysis). The final aim of this project is to define a comprehensive management and interpretation method for different kinds of raw data. A multiscale approach will allow the use of those information to achieve a single framework for the evolution of a complex network, namely a capital city and its hinterland during the last two millennia.

Representing complexity, communicating relations. Network analyses of ornamentation on twenty pottery vessels from the Sarup causewayed enclosure on Funen, Denmark

Rie Bloch (Aarhus University)

The comprehensive and complex ornamentation on the Funnel Beaker Vessels are products of human choice and technology, and are in no way coincidental. But how about the composition of these ornaments – does it display a specific structure, or syntax? Are there any types of geometrical decorations that are more central than others, or do they all appear to be positioned coincidentally? The foundation of this research is a general enquiry into what happens during the middle Funnel Beaker period (in Denmark, around 3300-3100 BCE) with the expansion of both ornamented pottery vessels, megaliths, causewayed enclosures and ritual acts, and how this is reflected in the pottery ornamentation. With all this evidence on structure, consciousness and not at least the ritual practices within which pottery vessels are of key importance, it seems plausible that these aspects of the TRB society are recurrent in the arrangement of the pottery ornamentation as well. Network analyses are applied to decode the syntax of Funnel Beaker ornamentation, as this multivariable statistical tool can decode the relations between ornamentation whereas the CA analysis for instance rather decode the combinations of ornaments, shape etc. Furthermore, the network analysis will disclose information on different degrees of centrality of the specific ornaments involved and hence which ornaments attain the most relations to others. Traditionally, network analysis has been used in archaeology to decode e.g. routes of trade, migration, communication and exchange of ideas (see e.g. Knappett 2013). By applying the network analysis on artefacts and hence “dead objects”, a new methodology is developed. Archaeologists are hence offered new insights to a classical, thoroughly analysed material, which eventually might lead to questions about existing typologies (and chronologies) in Neolithic archaeology. With a theoretical basis in semiotic discussions of material culture, communication and agency, it will be discussed if the syntax of ornamentation is communicating a message and hence potentially can be equated with a symbolic language within and between different Funnel Beaker communities.


Flint artefacts as a social media in Neo-Eneolithic societies of North Pontic region during VI-V mill. BC

Dmytro Kiosak (Odessa I.I. Mechnikov National University)
Co-authors: Jehanne Affolter (Bern), Nadiia Kotova (Kyiv), Willy Tinner (Bern), Ebbe Nielsen, Helena Wehren (Bern)

Lithic collections from the region of interest were subjected to a raw material provenance study combined with the reconstruction of prehistoric technology. In developed Eneolithic (Trypillia B2-C1) some varieties of flint were moved over distances of hundreds of kilometres to reach consumption sites. The transport required some sort of social institution – logistic network in order to establish and keep the supplies going. Some Eneolithic flint-knappers were involved in a logistic network, and developed some professional skills and abilities as evidenced by technological complexity of their products. The development of this system is an open research problem. The stratified site of Melnychna Krucha provided us with a long record of flint acquisition strategies. The “Mesolithic” model is defined by limited amount of exotic raw material. Linear Pottery culture sites (namely Kamyane-Zavallia group) mostly depended on the long-distance export of excellent quality flint from west and north-west, while Early Trypillian expansion in the first half of Vth mill. BC saw the revival of “Mesolithic” flint supply strategies. The developed network of logistical support of flint tools production had arisen in Trypillia B1 basing on the Dniester river valley outcrops.

Transformations in settlement structures and distribution systems in the Neolithic Moravia

Petr Pajdla (Department of Archaeology and Museology, Masaryk University, Brno)
Co-Author: František Trampota, Department of Archaeology and Museology, Masaryk University, Brno

The aim of this paper is to investigate spatial organization of Neolithic groups in Moravia (Czech Republic) based on distribution networks of raw materials for chipped stone tools. Within the region, the Neolithic period (ca. 5500 BCE to 4000 BCE) is represented by a sequence of pottery traditions (cultures), the so-called “Linearbankeramik” (LBK), “Stichbandkeramik” (STK) and “Lengyel culture” (LGK). Individual settlements in each of the subsequent chronological horizons form nodes of larger supra-regional interaction networks facilitating the flow of material goods...
as well as information. Changing over time, these interaction networks are not stable phenomena; some collapse with the end of the LBK pan-European cultural continuum, whereas some new, different networks emerge. Network analysis and geographic information systems approaches are employed to correlate developments of interaction networks with changes in settlement structure. The paper focuses on modelling exchange networks of raw materials for chipped stone tools that are easily transportable and thus represent good proxies by whose study the networks may be reconstructed. Several theoretical models of diffusion patterns for raw materials are considered. A down-the-line distribution pattern implies exponential decay in the volume of the exchanged commodity with distance. Such a situation would suggest a non-hierarchical settlement structure. On the other hand, hierarchical modes of distribution where some settlements differ significantly in terms of volumes of raw materials present imply a hierarchy in settlement patterns. A comparison of the networks modelled on the basis of extant data with these theoretical models allows for the assessment of discrepancies between social and spatial distances in settlement network and indicate the nature of social organization. This approach enables us to study network topologies in discrete time horizons of the Neolithic period and link the dynamics in interaction networks with transformations of settlement patterns.

Trade has social impact! Why we need to rethink „distribution“ in the Bronze Age

Lennart Linde (Goethe Universität Frankfurt)

The study of material fallout over space and time is a key technique in archeological research. Especially within the field of Bronze Age studies it quickly became evident that the patterns observed can be interpreted as the „footprint“ of former distribution networks. Today one of the main applications of social network theory in archaeology is the reconstruction of such distribution or trade networks. In sharp contrast to the high significance we attribute to this networks themselves our frameworks to explain and interpret the modes of distribution driving them appear perilously one dimensional. With some scholars even argue they are thoroughly reciprocal. This thinking needs to be challenged by incorporating „trade“ into a complex system that pays attention to the fact that exchange of goods has agency lead to an emergence of intertwined social phenomena. As flows of goods traverse to space they have an impact on the social landscape that forms the substrate that fuels them. So does the diversification of labor, the raising complexity of production cycles and the ever growing entanglements and dependencies that come with them. This leads to a political dimension of economy that will spawn alliances and conflict between territorial units but also within a society on a micro scale. Conflicts and tensions on various scales inevitably bear institutions that aim to balance them and therefore stabilize society. The presentation outlines a rough draft of a framework that incorporates ideas from socio geography, economical theory and conceptions of conflict in prehistory with the aim to broaden (and challenge) our understanding on the social impact on distribution systems.

Settlement scaling theory and the Roman Empire

John Hanson (University of Reading)

Settlement scaling theory and the Roman Empire In the last few years, there have been two developments that have led to a radical transformation of our view of ancient urbanism. There is now an emerging collection of theories, known as settlement scaling theory, which has devised a unified set of models of how settlements function across space and time, drawing on recent thought on complex systems. At the same time, there has been increasing interest in quantifying various aspects of the urbanism of the Greek and Roman world, including the sizes of the inhabited areas of settlements, allowing us to estimate the numbers of inhabitants in sites. In this talk, I will begin by offering a brief review of recent work, which has attempted to extend settlement scaling theory to the Roman world in the Imperial period, concentrating on various forms of infrastructure, such as the numbers of houses, sizes of public spaces such as fora and agora, dimensions of street networks, capacities of theatres and amphitheatres, etc. I will then discuss one of the most important outstanding issues in current work, which is our inability, as yet, to find meaningful proxies for material outputs, before sketching some avenues for future research.

Social complexity and complex societies in Iron Age

Oliver Nakoinz (Institute of Pre- and Protohistoric Archaeology, Kiel University)

Complex societies are a frequently discussed topic in Iron Age research. Complex societies are societies with a hierarchical structure indicated by different quality levels of grave goods. This paper discusses the relationship of social complexity and complex societies in Iron Age starting with the “hierarchy pitfall” which is a common logical error in archaeological hierarchy reconstructions and continuing with identifying the need of complex societies with complexity reduction. This shows that social complexity and complex societies are inverse. In a case study social instability and population thresholds are addressed. In this context the use of simulations is explained and finally, the question of social complexity in networks is addressed.
The study of pottery and their distribution patterns constitutes one of the basic archaeological tasks since the establishment of the discipline. But what seems so simple and time-tested is in reality a complex process for several reasons: Firstly, different scales, conditions of preservation and states of research overlap in the spatial and temporal distribution patterns of ceramic artifacts. In terms of research technology, this leads to complexity because we always have only selective evidence from originally spatially much more widespread practices of pottery production and consumption, which itself represents only a small part of the underlying ideational space of possible ceramic forms and uses. Thus, secondly, also the past – the realworld process itself – is complex: Distribution takes place in the material space, which is spanned by distances, but also by transport costs. Another important aspect is social space, which is certainly dependent on material space, but distorts it through its specific configurations. The spread of pots and stylistic features is determined by the sometimes interrelated practices of producers and consumers, some of whom may be identical social groups, some not. Pottery makers and users are related to each other through their actions in complex entanglements, which are supported by spatial mobility of humans and things. Thereby, already locally existing styles affect the appropriation and transformation of innovations, which is co-determined by their positions in relation to each other in a stylistic similarity space. All these interactions within and between the spaces leads to emergent phenomena in terms of style transformation in a diachronic and spatial perspective, which in the end is simply bundled in an archaeologically evaluated ceramic vessel. How do we define local and non-local ceramic forms and stylistic features under these conditions? In order to investigate such complex entanglements and their mutual influences, it makes sense to define a spatially and temporally limited domain without isolating it. At the same time, it is extremely helpful to have good control over the dating and homogeneity of the data. The circumalpine lake shore settlements are an outstanding example of this, where dendrochronology can be used to track changes on a potentially year-specific level, where the specific preservation conditions provide an extremely rich collection of even completely preserved vessels, and where long-standing experience and research practices have established standards for data reporting. In this presentation we want to give an insight into the already achieved results of the SNFS-project ‘Mobilities, Entanglements and Transformations of Neolithic societies on the Swiss Plateau (3900-3500 BCE)’ regarding the complexity of mutual stylistic influences. On the other hand, we want to discuss our ideas for a simulation based on these results. With the help of an abstract agent-based model, which simulates the acting individuals and their interdependencies as well as the spread of styles along these networks, the salience of the different spaces and the driving forces for change in the ceramic production of Late Neolithic societies of the Swiss Plateau and beyond will be better understood against the background of empirical findings.

Spread of innovations recently became a topic of growing interest in archaeology and anthropology. The related studies question the mechanics of innovations flow through the complex networks mostly examining their basic statistical properties. Our paper contributes to the development of this topic with the analysis of culture as information system. First, we will briefly present the theoretical background providing simulations with the proper categorical language and main parameters, which can be quantified. More specifically, the following categories will be concerned: ‘unification’ and ‘diversity’; ‘invention’, ‘innovation’, ‘imitation’ and ‘diffusion’; ‘reduction’, ‘informational capacity’ and ‘system memory’. Second, we will question the explanatory capacity of network analysis for simulating the origin of inventions, innovations and imitations. The utility of several well-known approaches, such as Erdős-Rényi model, to simulate and analyze the cultural complexity will be tested. Third, the obtained results, which specify the interrelations between the origin and spread of innovations and cultural transformation, will be discussed within a wider framework of the complexity theory and complex networks in archaeology.
**Mediterranean Connections – how the Sea links people and transforms identities**

*Tuesday March 12th until Thursday March 14th, Room 105*

Session organizers: Francesca Fulminante; Anja Rutter; Laura Schmidt; Dennis Möhlmann, Hilmar Klinkott, Lutz Käppel, Oliver Nakoinz

**TUE 15:30** Deep histories of Mediterranean mobility and the role of network models

R 105 **Keynote lecture: Carl Knappet (University of Toronto)**

16:00 Once were ‘warriors’: Late Bronze Age-Early Iron Age Mediterranean Webs of Significance Connecting Identities Through Space and Time  
Andrea Babbi (Leibniz-Forschungsinstitut für Archäologie, Römisch-Germanisches Zentralmuseum (RGZM) Mainz)

16:20 The Ideology of Seafaring in the Odyssey  
Hauke Schneider (Institute of Classics/GSHDL, Kiel University)

16:40 Evagoras of Salamis – the link between Athens and Susa?  
Dennis Möhlmann (Institute of Classics, Department of Ancient History, CAU Kiel University)

17:30 By Sea and by Land: some observation on Pre-Roman and Roman terrestrial transportation system in Latium and Etruria between the Mediterranean and Europe  
Francesca Fulminante (Bristol University)

17:50 Island networks  
Helen Dawson (FU Berlin)

18:10 The Sea as a Comic Landscape: Ps.-Scynnos and the literary appropriation of the Mediterranean Sea in Hellenistic Times  
Lutz Käppel (Kiel University)

**WED 09:00** Seafaring and the Reception of (some) Archaic Greek Lyric Poetry

R 105 **Keynote lecture: Maria Noussia-Fantuzzi (Aristotle University of Thessaloniki)**

09:00 Seafaring and the Reception of (some) Archaic Greek Lyric Poetry

09:30 Maritime Cultural Landscapes of Fishing Communities in Roman Cyprus  
Maria Michael (University of Southampton, Southampton, UK)

10:30 Glocalising identities within the Mediterranean: the case of Fregellae  
Luca Ricci (Utrecht University)

10:50 People, Ideas, and Things: A Theoretical Analysis of Koan Mycenaeans Identity During the Late Bronze Age  
Katarzyna Dudlik (Adam Mickiewicz University in Poznan)

11:10 Regional religious connectivity in the Hauran  
Francesca Mazzilli (Cambridge Archaeological Unit, University of Cambridge)

11:30 Uncovering networks through the study of Nuragic sanctuaries  
Valentina Matta (Aarhus University)

11:50 Discussion

13:30 The Iron Age Adriatic World: Identity and Connectivity Beyond Borders  
Leah Bernardo-Ciddio (University of Michigan)

13:50 The Strait of Messina: from a dangerous to a crucial connection point  
Chiara Matarese (Kiel University)

14:10 Sea-Storms and Aristocratic Identity in Alcaeus  
Ippokratis Kantzios (University of South Florida, USA)

14:50 Discussion
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<td>POSTER SESSION</td>
<td>Roman amphorae network analysis</td>
<td>Barbora Ruffini (Masaryk University, Faculty of Arts, Department of Archaeology and Museology)</td>
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<td>THU  08:30</td>
<td>08:30</td>
<td>Recalibrating the Digital Humanities for Archaeology: The Mycenaean Aegean</td>
<td>Henry Price, Ray Rivers (Imperial College London)</td>
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<td>08:50</td>
<td>Aegean connections in context: appropriation of urban culture in the Mycenaean Greece</td>
<td>Piotr Zeman (Adam Mickiewicz University in Poznan)</td>
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<td>09:10</td>
<td>Seafaring Poems in Pindar’s Epinicia and Encomia</td>
<td>Thomas Kuhn-Treichel (Universität Heidelberg)</td>
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<td>09:30</td>
<td>Maltese connections: remarks on cultural identity starting from the architectural language between the 4th and the 3rd century BC.</td>
<td>Francesca Bonzano (Catholic University of the Sacred Heart, Milan)</td>
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<td>Chalcidic connectivity between Sithonia and Pallene: transmutations of epichoric identity and resilience through environmental sustainability in the long 5th and 4th century BC.</td>
<td>Maria Xanthou (Harvard Center for Hellenic Studies)</td>
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<td>10:50</td>
<td>Ovid’s Identity as Exiled Poet</td>
<td>Stefan Feddern (Assistant in Classics (Latin Philology), Kiel University)</td>
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<td>11:10</td>
<td>To be Greek or not to be: about the “Greekness” of Epirus and Southern Illyria. An overview through urbanism and theatrical architecture in a Mediterranean perspective.</td>
<td>Ludovica Xavier de Silva (“Sapienza” University of Rome – Department of Classics)</td>
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<td>Black Sea networks, monumental burial traditions and elite display in the late Classical and early Hellenistic period</td>
<td>Jane Rempel (University of Sheffield)</td>
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<td>13:30</td>
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<td>Sea routes of amber around Europe. The dynamics of Baltic amber distribution during the IIInd millennium BC</td>
<td>Janusz Czebreszuk (Institute of Archaeology, Adam Mickiewicz University in Poznań, Poland)</td>
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<td>13:50</td>
<td>A sea of wine and honey. Immaterial connections and networks of narratives in the Hellenistic Western Mediterranean</td>
<td>Rafaela Da Vela (Gastwissenschaftlerin Historisches Seminar Universität Leipzig, Lehrstuhl für Klassische Archäologie) Yasmine Mahmoud (Università degli studi di Pavia)</td>
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<td>14:10</td>
<td>Archaeology and Syrian Identity: ‘Urkesh Gate’ a good Tale from Syria</td>
<td>Keynote lecture: Hiba Qassar (PhD in museum studies, AVASA)</td>
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**ABSTRACTS**

**Mediterranean Connections – how the Sea links people and transforms identities**

*Keynote speakers: Carl Knappett (University of Toronto), Hiba Qassar (PhD in museum studies, AVASA)*

*Session Organizers: A. Rutter, E. Loitzou, O. Nakoinz, F. Fulminante, L. Schmidt, D. Möhlmann, L. Käppel, H. Klinkott*

Long-term research interest in the Mediterranean has produced a substantial body of data and concepts that make it a fascinating testing ground for new approaches on identity, alterity, and connectivity. For the inhabitants of the Mediterranean, the sea evidently influenced their lives and their thinking in a significant way. (Pre-)history, philology, and archaeology alike can trace the emergence of ancient perceptions of distance and connections as well as the movement of material, people, and ideas. Researchers of these professions have long been irritated by a tendency to define political or cultural entities spatially. The identification of collective identities as networked spheres of interest, however, allows us to progress towards an understanding of processes within the Mediterranean as a dynamic area of common cultures and conflicts. Shared mental maps and networks thus help to understand the collapse of powers, systems, and identities, the emergence of new ones, and the role of possibly persisting parts of a network in such processes. With contributors from all disciplines dealing with connections, networks, and mental maps, whether they be archaeology, (pre-)history, philology, geography, and sociology, and also the natural sciences, we would like to discuss the following:

- how the contact area of the Mediterranean influences the (self-)representation of peoples and individuals as well as the formation of identity and alterity
- what role Mediterranean connections play in cultural, political, and ideological developments
- how ancient writers and artists form and use Mediterranean connections
- analyses of the emergence and transformations of connections within the Ancient Mediterranean
- the conditions under which the physical environment determines the presence or absence of connections
- how the concept of network layers contributes to an understanding of past events around the Mediterranean seascape
- new theories and interpretations concerning the role of power, conflicts, and different communities that can be connected to the network approach
- network modelling between simulations and empirical observations

We particularly invite contributions from a wide range of regions to include as many perspectives as possible from around the Mediterranean World.

The network aspects of this session links with the theoretical approaches of Complexity (Schlicht et al., Session 6), while connectivity and emergence of identity relate to Social Space (Grimm et al., Session 1) and Social Resilience (Yang et al., Session 11). They also form a backdrop to considerations of Territoriality (Schaefer-Di Maida et al., Session 8). The concept of mental maps is also reflected in Urban Knowledge (Chiarenza et al., Session 9).

**Deep histories of Mediterranean mobility and the role of network models**

*Keynote lecture: Carl Knappett (University of Toronto)*

Network analysis has seen conspicuous growth across archaeology, no more so than in studies of ancient Mediterranean mobility. The application of similar sets of methods can give the impression that we might soon be able to compare patterns of mobility diachronically, thereby providing long-term narratives that cut across not only millennia but also the disciplinary divides of prehistory and ancient history. While this is an exciting prospect, a little caution is required. Any network analysis rests on an underlying model or theory, implicit or explicit, concerning the characteristics of connectivity and the motivations for mobility. Are these the same in scholarship on the Neolithic, the Bronze Age, the Archaic, and the Roman periods, for example? For later periods there can be a considerable emphasis on understanding mobility and interaction within the framework of economic history, an emphasis that is not necessarily shared in prehistoric archaeology. If economic history is not providing the models and theories, then what? Has Bronze Age mobility, for example, typically been understood in more social or political terms? I will stress the need for a clear-sighted and explicit awareness of our sources of analogy and models prior to the application of any particular network methods, the selection of which should then of course be made within this wider framework. If an effective deep history of Mediterranean mobility is to materialise, then it will require the different models for interaction that might emerge out of distinct scholarly traditions to be ‘tuned’ or brought into some degree of alignment.

**Once were ‘warriors’: Late Bronze Age-Early Iron Age Mediterranean Webs of Significance Connecting Identities Through Space and Time**

*Andrea Babbi (Leibniz-Forschungsinstitut für Archäologie, Römisch-Germanisches Zentralmuseum (RGZM) Mainz)*

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The most representative Late Bronze Age-Early Iron Age Mediterranean burial assemblages preserving weaponry have passed down data sets that are very useful for investigating identity, alterity, and connectivity throughout the Mediterranean scape. In fact, these funerary contexts, often reductively described as pertaining to ‘warriors’, yielded indeed cultural diacritics hinting at kaleidoscopic identities mirroring various social roles, likely fostered by a plethora of life experiences. In particular, the occurrence among some of these burials of refined weighing tools as well as of concurrent hoards of hack-metal in the neighbouring regions but originating from outcrops located far away, let one hypothesize their involvement in the ebullient exchange networks spreading across the Mediterranean Sea. By sailing the ‘black sea’ and playing a role in a physical and mental frontier milieu, multifaceted and permeable by nature and where newcomers-natives’ interactions had capital significance, these individuals likely developed a rather acute hodological perception of space. Such perception thrived in mental maps made up by threads connecting individuals acting as human nodes of webs of significance spreading across space and time. By dealing with a plethora of externalities these prominent individuals developed a transcultural attitude that allowed them to face alterities not only by displaying power and embarking in cultural and physical conflicts, but also by taking part in and setting up new cross-cutting ‘groups of solidarity’ reflecting the ebullient factional competitions shaking all the groups involved. Such experiences made it possible for these people to internalize new sets of practice and significance so deeply that some of them could not help but introduce their seriously altered badges of identification to their community of origin when returning home.

The Ideology of Seafaring in the Odyssey

_Hauke Schneider (Institute of Classics/GSHDL, Kiel University)_

Hardly any other literary work of ancient Greek or Latin literature is as much interwoven with the Mediterranean as the Odyssey. Perpetual references throughout the epic make it possible to show how highly ambivalent the sea was perceived by the Homeric society: Unbreachable and separating except for a seafaring man. But even for them the sea was extremely dangerous. Yet the one who crosses the sea successfully has the chance to expand his knowledge and achieve wealth and fame, an essentially task for members of the Homeric aristocratic-courty society (Dodds’ shame culture is the central term here). My aim in this paper is to show how these negative and positive aspects of Mediterranean seafaring were rated so high that seafaring itself became an important criterion to judge people’s culture and power. How fundamentally successful seafaring as a sign of a highly developed culture and general superiority underlie the protagonists’ thoughts and deeds shall be demonstrated by the analysis of an essential scene: the hanging of the disloyal servant maids (χ 435-73). The Telemachy is generally viewed as a coming-off-age story. Odysseus’ son undertakes a sea voyage to gather information about his father and win himself fame (α 93-5). The young prince visits his father’s old companions, who become his first positive male role models. They demonstrate to him the highly symbolic behaviour, which is central to the aristocratic-courty society. As a sign of his reciprocal connection with them Telemachus receives gifts of honour (ο 75-131), which are essential for the demonstration of wealth, power and fame. Received into the society of the most eminent Greek heroes and having mastered the sea Telemachus returns home as a worthy comrade of his father as well as an eligible heir to the throne. After the victory over the suitors Odysseus advises Telemachus to decapitate the disloyal servant maids. But instead Telemachus hangs them. Modern critics disapprove of the cruelty as disproportionate. Yet less attention is paid (i) to the background of the Homeric aristocratic-courty society and their ethics and (ii) to the „cable of a darkprowed ship“ (χ 465) that Telemachus uses as a rope. Why did the author use more than half a verse to make this explicit? Why mention the instrument anyway? 

(i) After his homecoming it is of utmost importance for Telemachus to demonstrate his newly gained power to the courtiers, who have hitherto seen him as immature and powerless in the face of the suitors’ and maids’ presumptuousness. By the deliberate change of the manner of execution Telemachus creates a sign of his own power that can not escape anyone who looks at it: Not Odysseus executed the maids but the prince, who thereby clearly shows that he took part in the re-erection of the court’s order and that he finally has the maturity and might to master the servants - a crucial qualification for an heir to the throne. Thus judged from the point of view of the ethics of the aristocratic-courty society the hanging does in no account seem disproportionate but necessary as a symbolic representation of sovereignly power.

(ii) Within this new understanding of the hanging of the maids and referring to the demonstrated high reputation of the seafaring man Telemachus’ deliberate use of the ship’s cable gets a new striking sense: it becomes a powerful symbol for the young prince’s successful voyage as initiation and the power he gained because of his mastering of the sea.

Evagoras of Salamis – the link between Athens and Susa?

_Dennis Mohlmann (Institute of Classics, Department of Ancient History, Kiel University)_

The relationships between the Achaemenid Persia and Hellas were ambiguous. At the end of the Peloponnesian War the Athenian admiral Conon fled from the battle field at Aegospotamos to Cyprus. There, he hoped to get asylum at the court of Evagoras, King of Salamis and also vassal of the Great King Artaxerxes II. After the surrender of
Athens, the Lacedaemonians waged war against Persia and send troops to Asia Minor. Due to the broken thalassocracy of the Athenian Sea Empire the Achaemenid King now seized the opportunity to create a new Mediterranean fleet - to win the war on the open seas. Furthermore, in order to avoid a potential threat from the “Greek world” the Persians followed an established strategy by stirring up the internal conflict in Hellas (Thucydides). For this purpose, Subsidia were sent to Athens and their former Admiral Conon should be appointed to a Nauarchos for the newly created fleet of the Great King, besides the Persian satrap Pharnabazos. Concerning Conon’s transition into the service of the Great King many questions remain unanswered. The aim of this paper is therefore, to clarify the role of Evagoras of Salamis as a possible mediator in this process - especially, as Conon sought refuge directly at his court, instead of trying to get help by a Persian satrap in Asia Minor like other Greeks before him (i.e. Alcibiades). Evagoras probably was known as a friend of the Greeks and especially of the Athenians (Isocrates). But has he built a network, and hereby created a link between Athens and Susa, which became crucial to get a connection to the Achaemenid Empire? Such being the case, which benefits perceived Evagoras by this intermediation? On these issues, the paper is divided into two parts: The first is meant to point out the initiating person of the mediation – particularly in view of the fact, that the ancient literary testimonies give us inconsistent reports, whether it was the expatriate Conon, the Persian satrap Pharnabazos, Evagoras, the author Ktesias or even the Great King himself. The second part of this contribution will examine the potential intentions of Evagoras, if he was the mediator among Hellas and Persia. In consequence it must be also elaborated if he accomplished his possible motives.

By Sea and by Land: some observation on Pre-Roman and Roman terrestrial transportation system in Latium and Etruria between the Mediterranean and European Networks
Francesca Fulminante (Bristol University)
Terrestrial routes can be considered as the result of the interplay of multiple factors: they are essential for permitting inter-settlement cooperative processes (information exchange, trade, defense), and at the same time, they need some level of cooperation to be established. However, since their creation and maintenance require a not negligible amount of resources, transportation routes are affected by competing interests. We can think of each connection between a pair of places as the result of a negotiation that involves the two actors but that can also be influenced, to some extent, by “third parties” as, for instance, a political authority acting on a higher level. In this paper we focus on terrestrial transportation communication networks in Pre-Roman and Roman central Italy within the wider networks of Mediterranean and European connections as a case study and we compare information about Roman age roads to modelled routes based on least-cost path connections among pre-Roman and Roman settlements in central Italy both at the local (urban-rural) and regional level (inter-cities). Our aim is to understand the complex cause relationship between settlements and communication transportation routes. Were routes established to connect previously existing settlement or were new settlements founded along pre-existing established long distance regional and/or interregional connections? Some preliminary analyses seem to suggest that several of the important Roman roads running along relevant long-distance natural routes across the peninsula (river valleys, ridges etc.) were significant connections well before the Roman time both as long distance stretches but also for small-scale local communications.

Redefining the role of insular and marginal spaces in Mediterranean interaction networks from the Neolithic onwards
Helen Dawson (FU Berlin)
In the present day, the islands of the Mediterranean are generally categorised as marginal spaces, lying on the edge of mainstream political and economic processes. Small islands in particular have finite resources, often specialising in certain products, and historically they have suffered from their limitations. Their present condition may account for the tendency to project marginality on islands also in the past, as if marginality were an unavoidable consequence of insularity. Contrary to this imposed view, a diachronic perspective reveals how islanders experienced both phases of centrality and marginality over the Mediterranean Longue Durée. The small islands off the coast of Sicily provide us with ideal case studies to explore these ideas further. Their development - starting from their earliest colonisation in the Neolithic (6th millennium BC) - is almost a cyclical repeat of a centrality/marginality pattern: while at times the islands fulfil the criteria of marginal spaces, at others they can also lie at the centre of interaction. The latter is particularly evident during the Middle to Late Bronze Age (ca. 1700-1200 BC), which saw the establishment of long-distance contacts between the Aegean and the central Mediterranean. This alternating pattern prompts a reflection on the meaning of the concepts of insularity and marginality: marginality in this context has connotations of being “on the edge” rather than being geographically isolated - facilitating interaction given the right historical conditions. The key element is an island’s lying between different worlds rather than its distance in absolute terms to a centre. A network perspective can thus redress the role of small islands in prehistory, which have been marginalised by the prevailing core-periphery model. Moreover, as in-between spaces, islands fostered new forms of cultural identity through local syncretism, thus playing a vital role in the process of “Mediterraneisation".
The Sea as a Comic Landscape: Ps.-Scymnos and the literary appropriation of the Mediterranean Sea in Hellenistic Times

Lutz Käppel (Kiel University)

The work on a ‘Periodos of the World’, written by an anonymous author (the so-called Ps.-Scymnos) in ‘comic verse’, i.e. iambic trimeters, which are characteristic of ancient comedy, is one of the most charming pieces of writing of Hellenistic times. As a didactic poem it gives a lot of geographical and cultural information. The paper, however, will investigate the role, which the sea plays as a connecting factor between the different places on the shores of the Mediterranean, and will thus try to characterize the ‘hellenistic’ view on seafaring in the media of a highly artificial form of writing. A key to the proper understanding of the poem seems to be its form as a comedy: The ‘fun’ of the Mediterranean shall be shared by the readers.

Seafaring and the Reception of (some) Archaic Greek Lyric Poetry

Keynote lecture: Maria Nousia-Fantuzzi (Aristotle University of Thessaloniki)

This paper discusses the relationship between seafaring and the Hellenistic reception of some archaic Greek Lyric Poetry. Although most of the texts in question have been discussed recently, the role of the sea has been underplayed or overlooked.

Seafaring across the Mediterranean Sea between Egypt and the rest of the world or specifically with continental Greece or the Minor Asia Greek cities can be argued to have a natural role in the chronotopic definition of Hellenized Egypt. Indeed, the idea of seafaring is an aspect of the poems on the Hellenistic Reception of Archaic Lyric Poetry that deserves more attention as it seems to often support/help the continuity between archaic and classical Greece and thriving Egyptian literature and scholarship. The sea unites more than it divides, and seems to ensure the contact at the end of the journey, instead of emphasizing its risks.

In Phanocles fr. 1 Powell the most widespread motif of the sea as the ideal place for persons and things to be disposed of irretrievably is overturned as the head and the lyre of Orpheus are driven by the sea into which they are thrown to Lemnos. The sea as a dangerous place with its potential of bringing death, or of taking things away and making them disappear, is overturned again in Posidippus’ epigram 37 AB, which contains the description of how the lyre of another great figure of archaic poetry, Arion, came to Egypt brought by a sea dolphin. In both cases the sea and its creatures make possible the preservation and transmission of the lyres. In other words, the sea is transformed into an agent of transmission of the lyric past to the lyric present – a guarantee of identity.

In another epigram by Posidippus, 122 AB, for Doricha, a hetaera of Naukratis in Egypt, famous as the mistress of Sappho’s brother, the poet comments at line 8 that [Naukratis will preserve the name of Doricha] ‘as long as a ship sails out from the Nile across the salt sea’. It will be argued that it is better to understand the Naukratite ship as conveying Posidippus’ own poetry and not merely that it is probably laden with poetic scrolls (Rosenmeyer 1997, 132; Bing 2005, 132). In any case, either Posidippus seems to feel assured that his work will come to be preserved for posterity (like Sappho’s) through the well-developed book trade, or this preservation is ensured more in generally by the literary heritage of Greek poetry. If, however, Posidippus is thinking of his own poems his statement would update Pindar’s self-confident proclamation in Nem. 5.2-3 ‘on every merchant ship, on every boat, sweet song, go forth from Aegina proclaiming the news’. He does not say (like Pindar in Ol. 9.21-27) that he will ‘spread Doricha’s fame “faster than any ship or horse can travel” but in realistically connecting dissemination with the papyrus trade from Naukratis, “the city whose power is in ships”, he shows awareness about seafaring as a mechanism of safe preservation and circulation. It will be precisely by transporting the poem of Posidippus to faraway places that the name of Doricha will be preserved.

Maritime Cultural Landscapes of Fishing Communities in Roman Cyprus

Maria Michael (University of Southampton, Southampton, UK)
Co-author: Carmen Obied (PhD, University of Southampton, Southampton, UK)

This research explores the tradition of fisheries and fishing techniques on the island of Cyprus during the Roman period. The maritime cultural landscape indicates fishing activities were important in the utilisation of maritime space in the Roman Mediterranean (Westerdahl, 1992). Regarding archaeological, iconographical and written evidence, fishing could be characterised as a small-scale activity for supporting a fisherman’s family, or as an organised societal activity involving fishermen collaborating with fish-salting establishments. The research presented here aims to demonstrate how perceptions of the maritime cultural landscape on the island of Cyprus can help to interpret the role the Mediterranean region played in the cultural, technological and ideological developments of traditional fishing activities in Cyprus. Furthermore, the island’s topography played a key role in how maritime exchanges and fishing practices were developed. Maritime communities relied on accumulated cognitive knowledge and mental-maps of the landscape, often preserved through oral traditions, to navigate and identify key fishing grounds. As with ancient navigation, landmarks and toponyms played an important structural role in the fishermen’s perceptions of the coastal landscape. Fishing practices would likely have been based on specialised knowledge and acquired familiarity of the fishing environment, seasonality and...
associated fishing gear and techniques, as well as how best to exploit characteristics of different fish species such as their favoured habitats and sea conditions. Thus, this research attempts to examine how the physical Mediterranean environment determines the presence or absence of fishing activities within its maritime landscape and, in turn, to further understand the relationship between fishermen and their maritime environment through fishing activity. Furthermore, the research intends to combine the terrestrial with the underwater archaeological data of the fishing methods from twelve sites in Cyprus in an attempt to acquire a better general understanding of the relationship between fishermen and their maritime cultural landscape in Roman Cyprus. The project that will contribute towards a more holistic understanding of the relationship daily life of the communities of the island. This research forms part of an ongoing effort to discover if and when the fishing activities had an influence on the economy and the development of the fishing technologies and to determine the development of the fishing technologies and to discover if and when the fishing activities had an influence on the economy and the daily life of the communities of the island. This research forms part of an ongoing project that will contribute towards a more holistic understanding of the relationship between fishermen and their maritime cultural landscape in Roman Cyprus.

Glocalising identities within the Mediterranean: the case of Fregellae

Luca Ricci (Utrecht University)

I shall explore the relationship between style and identity through the sanctuary of Aesculapius at Fregellae. Moving away from an ethno-cultural interpretation of style, I adopt a semantic approach, highlighting the commissioners’ social identity within the “globalised” Mediterranean. In traditional scholarship, the sanctuary celebrated Rome’s imperialistic ventures in the Eastern Mediterranean. This view derives from a static conception of culture, whereby certain styles could be associated to specific ethno-cultural groups. However, the presence of different styles in the sanctuary points toward a more dynamic interpretation of culture and meaning. According to a semantic approach, styles are applied to different situations, conveying specific ideologies/values, detached from the original meaning, yet implicitly determined by it. In a practical sense, the mechanics of the process can be seen through cultural universalisation and particularisation. At a universal level, the meaning of Hellenistic architectural style, originally determined by the monarchs, had changed, acquiring a civic significance in the wide oikoumene of poles. In this context, the adoption of Hellenistic style in Fregellae’s sanctuary (and institutional buildings) highlights “peer polity interaction.” Having become part of the Eastern communities through their economic dealings, the commissioners employed Hellenistic architecture to communicate with that social system. Particularisation indicates that the innovative, Hellenistic forms

were incorporated in the local reality through localised choices. The novel architecture, anchored to traditional features, determined social identity through elite competition within the town. Concurrently, given Fregellae’s important status within the Liris Valley, the sanctuary reasserted the colony’s worth in light of the neighbouring settlements.

People, Ideas, and Things: A Theoretical Analysis of Koan Mycenaean Identity During the Late Bronze Age

Katarzyna Dudlik (Adam Mickiewicz University in Poznan)

Co-author: Calla McNamee (Wiener Laboratory, ASCSA), Salvatore Vitale (University of Pisa)

Long-term research in the Dodecanese has produced a substantial body of data that have important implications for our understanding of identity and connectivity within the entire archipelago, as well as between specific islands. This can be applied especially to the Late Bronze Age (LBA), when Mycenaean centres participated in the dynamic exchange networks connecting distant regions in the Eastern Mediterranean. This paper is focused on a specific case study concerning the island of Kos. The aim is to investigate the significance of cultural transitions, which involved the circulation of people, ideas, and materials through a critical reconsideration of the different theoretical frameworks applied in the last decades. The island of Kos, as well as the broader area of the Dodecanese, was entangled in different cultural influences during prehistory. From LBA I, the impact of Mycenaean material culture is visible in the archaeological record. During the following phases, with the exception of language and the so-called wanax ideology, all significant features of mainland identity occur on Kos, including crafting technology, mortuary behaviors, cultic objects, and public architecture. Two prominent divergent theoretical approaches have been applied in the Aegean to understand transitions resulting from cultural contacts. Building from colonial theory, the first approach emphasizes the dualism between local and foreigners, arguing that the local community passively accepted Mycenaean culture as a result of political movements in the area. The second, originating out of social constructivist theory, claims that society actively decided to participate in the Mycenaean cultural phenomena by adopting certain behaviors and aspects of material culture. The results of the "Serraglio, Eleona, and Langada Archaeological Project" (SELAP) allow us to expand on the second perspective by considering the Koan society within the framework of cultural fusion, where local and exogenous practices were deliberately mixed to create a distinctive Mycenaean tradition on the island. This fusion manifests in the occurrence of locally produced Mycenaean objects, as well as Mycenaean cultural behaviors, which are particularly evident in funerary customs. These attributes allow us to understand the reasons and define the strategies of the

Literature


Katarzyna Dudlik (Adam Mickiewicz University in Poznan)

Co-author: Calla McNamee (Wiener Laboratory, ASCSA), Salvatore Vitale (University of Pisa)
local elites for expressing Mycenaean identity within the local and the wider Aegean social arena.

Regional religious connectivity in the Hauran
Francesca Mazzilli (Cambridge Archaeological Unit, University of Cambridge)

The paper aims to re-evaluate cult sites as the product of movements of people and ideas by undertaking an increasingly popular computer-based methodology: network analysis. It considers 29 attributes gained from multiple aspects of 60 cult sites in the Hauran (in southern Syria). These attributes are organised into the following categories: the script of inscriptions (e.g. Greek, Aramaic), major deities based on inscriptions and statues (e.g. Zeus, Tyche), dedicators (e.g. Roman soldiers), main temples’ plans (e.g. Graeco-Roman cela) and decorations (e.g. Corinthian capitals). The use of this comprehensive dataset is essential to counterbalance the fragmentary nature of the data and to have a more complete picture of cult sites. I show an application of bimodal network analysis successfully used by Raffaela da Vela’s work in northern Etruria. My study is based on the relational link between the group of cult sites and the different elements of each category mentioned above. It will enable us to evaluate, for the first time, regional connectivity in the religious landscape of the Hauran by visualising the evolution of cultural religious transmissions and movements of dedicators, and the relations between the two.

Uncovering networks through the study of Nuragic sanctuaries
Valentina Matta (Aarhus University)

To truly comprehend the socio-economic change of an ancient island society it is necessary first to analyze the internal development and then to investigate the external networks and their forms. While forming part of a European Bronze Age inter-linked community, Sardinia saw the development of the unique Nuragic civilization (1800-720 BC), named after its monumental stone-built towers, so-called nuraghi. The Nuragic landscape evolved from the construction of high and complex towers (1800-1200 BC) to extended villages and sanctuaries (1200-720 BC). This latter type of settlement was mainly characterized by sacred and civil areas, forming new territorial compounds and being a reference hub for multiple communities. The sanctuary corresponds likely to a reorganisation of the society in hierarchical, social and economic terms. With a new way of controlling economic resources, especially metal ores and metal production, the sanctuary became the institutional site for the management and distribution of prestige goods. Furthermore, it was likely the institutional market for metal trading and sharing new ideas with other Bronze Age cultures. These contacts seemed to have evidenced by a range of artefact types like horned-helmet warriors represented in Nuragic statuettes and among different Bronze Age regions like the Aegean area, Atlantic Iberia and Scandinavia. Guided by my main research question that seeks to understand the role of Sardinian networks and metal trade across Europe, the aim of this paper is to present the first part of my PhD project, which focuses on the Sardinian archaeological context. In particular, this paper will investigate possible internal networks among different Nuragic sanctuaries by using different types of GIS and networks analyses.

The Iron Age Adriatic World: Identity and Connectivity Beyond Borders
Leah Bernardo-Ciddio (University of Michigan)

Borders are contentious, liminal spaces; strongly political impositions on territory and landscape, they have limited regard for cultural material realities. The ancient world was one without fixed borders, comprising a patchwork of spheres of influence or interest that blended into and moved away from one another. Despite a keenness to acknowledge this constant flux of people and objects, archaeologists of earlier generations sometimes found themselves at the mercy of modern geopolitics in constructing research methods, forced to think through territorial concepts of interaction as driven by national interests. In recent decades, however, we have made great strides towards mitigating this problem as we acknowledge the transcendental qualities of coastal territories, maritime environments, and island networks. We now have generally accepted that a sea is not a barrier, and perhaps not even a simple bridge. In the case of the Mediterranean and its adjacent arms, we have come to understand them as distinct environments that foster high levels of communication, mobility, and connectivity. Recent years have seen a number of case studies in the Eastern Mediterranean. The Adriatic Sea is another environment in which the distinct features of a maritime world have manifested themselves for millennia, and in which a cohesive maritime cultural landscape has emerged at the nexus of its manifold relationships. Through the Early Iron Age, even in the wake of immense changes in the Aegean world and its associated networks of trade and movement, strong connections were maintained between the western coast of today’s Balkan Peninsula and Italy’s eastern coast. The persistence and steady increase of transit and communication between the coasts – facilitated by ease of navigability between southeast Italy and the eastern Adriatic provided by favourable currents and a conveniently-located island chain – resulted in similar material and cultural practices. This was not a uniform trend within this maritime landscape, however; a diachronic approach reveals that peoples inhabiting certain areas within the Adriatic world opted in or out of these relationships and
networks through different periods. This phenomenon is best explored through a network-oriented approach to materials circulating through this space and the human connections which they can helpfully illuminate – namely, the trade in amber, metals, and ceramics.

**The Strait of Messina: from a dangerous to a crucial connection point**

Chiara Matarrese (Kiel University)

Since the beginning of the Greek civilization, the “system” of the Strait of Messina has been one of the essential points, perhaps the most important, in the definition of a Mediterranean area. Several studies have highlighted the importance of the strait as a threshold (Prontera 1987, 2005; Guzzo 2005): it is at the same time póros, “way” of the sea, fundamental juncture of the navigation, which permits the connection between different trade routes, and pórthmos, “interruption”. The relationship of the ancients with the navigation is ambivalent. It is in fact known that the Greeks, and the Athenians particularly, were very familiar with this activity (and they elected it to symbolize their national pride) but they were well conscious of the many dangers associated with navigation. A strait is particularly dangerous because it is the meeting point between sea and land, where phenomena that hinder the passage take shape easily (like vortices). The most significant example is undoubtedly the Strait of Messina. For the Greeks coming from the East it connected a more familiar Ionian Sea with a more uncertain and unknown Tyrrenian Sea. For it there are abundant mythical elements, which already from the time of the wanderings of Odysseus underline the danger: just think of the deadly song of the Sirens, or the passage between two rocks inhabited respectively by the ferocious and monstrous Scylla and by the voracious Charybdis. Nevertheless, it was the meeting and connection point between two different communities: the peninsula and the island. After an introduction about the symbolic meaning of the strait for the Greeks, the paper will examine the case of the two cities located on the two opposites of the Strait of Messina: Reggio and Messina. Not the single story of the two cities is the main topic of my investigation, but the history of their articulating in a single bipolar urban system, tended to link two different complexes, two portions of the territory, on the Calabrian side and on the Sicilian one. This connection took place in many different forms: articulation of traffic through the Strait, linguistic exchanges, encounters and cultural clashes and harsh politicians. All these forms of connection show how people pursued to reduce the double barrier of Scylla and Charybdis, until it was annihilated, until it potentially disappeared.

**Sea-Storms and Aristocratic Identity in Alcaeus**

Ippokratis Kantzios (University of South Florida, USA)

In Alcaeus, the (Mediterranean) sea is a recurrent self-referring locus. Through the introduction of the image of the “ship of state”, the poet harnesses the figurative possibilities of the sea and incorporates them into his discourse of the declining fortunes of the aristocracy in early sixth century Mytilene. In his nautical passages, Alcaeus not only demarcates the ideological parameters of his hetaireia (political/military faction), but also contemplates its increasingly difficult role in a shifting environment as unstable and unpredictable as the sea itself. The poet utilizes the negative connotations of large expanses of water to draw the portraits of his political enemies, the tyrants, who assume the form of a storm and are thus transformed into an elemental force that clearly belongs not only outside the institutions of the polis, but even outside humanity itself (contrast the ship as an expression of techné and civilization). That the tyrants are ungodly figures and at odds with the community is indicated through their contrast with the crew/hetairoi: the latter are depicted cohesively in “we” terms and, even storm-tossed, they can claim a privileged bond with the gods (see, e.g., their appeal to Dioskouroi to cross the Aegean and save them from shipwreck and “chilling death”, fr. 34 V). Just as in Alcaeus’ polis the aristocrats are found at its centers of power, protecting it from tyranny, so in the metaphorical sea-storms they fight for the ship’s survival, while standing at “its center” (fr. 208 V). These adverse conditions force upon the hetairoi a form of trial that prompts them to reassert their identity through remembrance and emulation of their glorious forefathers and their striving to become each of them a dokimos aner (“a trustworthy man”, fr. 6 V). In Alcaeus, the stormy sea provides a framework for the political self-definition of the hetaireia through the latter’s quest for the overthrowing of tyranny and the reestablishment of the pedigreed aristocrats in their privileged place. Although in the end neither of these objectives was achieved, Alcaeus’ nautical discourse contributed to their articulation in a way that must have been greatly appreciated by his audience of islanders.

**POSTER SESSION: Roman Amphorae Trade Network Analysis**

Barbora Ruffini (Masaryk University, Faculty of Arts, Department of Archaeology and Museology)

Co-Authors: Vera Klontza-Jaklova, Eliska Petrekova, Zuzana Zigova
The main goal of our project was to create a network analysis of Roman amphorae trade, graphically recognize changes that occur over time and reveal hidden commercial patterns, if there are any to be traced. Visualization software that allows designing network of trade routes based on their geographical location but also can set them in specific time frame was a necessity to graphically depict these situations. A large number of social network analyses that provides different understanding of source data and the possibility to manipulate the graph structures in these programs, inspired us to work with network and data analyzing software. Consequently we have decided to use Gephi: The Open Graph Visualization Platform. Gephi is an open-source graph set exploration software that transforms data into interactive and complex graph structures. It provides a real-time visualization of large-scale networks, which makes graph adjustments very efficient and speeds up the exploration process. In addition, many constantly evolving plug-ins can create adapted interface based on individual requirements of specific analysis and produce more valuable results. Our project required additional installation of Geo Layout plug-in. It displays graphs based on their geocoded attributes, such as latitude and longitude, which makes pairing networks with GIS (Geographical Information System) maps very effective later on. Since Gephi converts complex data sets into graphs, a database with specific parameters adjusted for the program interface needed to be created. The Roman Amphora Project developed by Archaeology group at the University of Southampton was used as a primary source. 208 Roman amphorae that were in use from the first century AD onward were selected, as Gephi does not recognize time data before Christ. We worked with four main sections of the amphora type sheet: Date Range, Origin, Distribution and Contents. Necessary data was selected and implemented into our spreadsheet. The database was then extended by 33 additional Roman amphorae from several different sources and the same pattern of collecting and adapting the data to fit needed specifications was maintained. Gephi then converts this database into the networks. These graphs then can be filtered based on their content, typology, time range, import and export parameters, degree of connectivity and set into various layouts according to researchers’ requirements. To form the most accurate analysis, Gephi networks were also paired with GIS maps. We worked with ArcGIS software to create modified environments that provides detailed base layer of specific locations for particular network, which can be adjusted depending on required century. These complex Roman amphorae trade network analyses will then be compared with historical events, war conflicts, political and climate changes. With the ability to compare multiple layers of different attributes over one another, it is possible to study different business relationships and hidden trade patterns that we would not be able to detect without this simulation. The large number of various layouts, filter combinations and statistics enable researchers to work with their questions and hypotheses on a whole different level, as this program has fundamentally endless research potential.

Recalibrating the Digital Humanities for Archaeology: The Mycenaean Aegean
Ray Rivers (Imperial College London)
Co-authors: Paula Gheorghiade (U. of Toronto), Henry Price (Imperial College, London), Tim Evans (Imperial College London), Carl Knappett (U. of Toronto)

Archaeological data presents a paradox. Instead of ‘big data’ we have the very different ‘lots of data’ e.g. a wide range of ceramic evidence. Although this data cannot be taken as simply representative, there is still often just enough to make it possible to address questions about large-scale behaviour of societies and their networks of interactions. For example, despite the lack of systematic archaeological material, a recent attempt to model Phoenician Mediterranean interactions [1] dominantly makes use of geography to form the basis for comparison. This example is couched in a framework of ‘theory modelling’ in which assumptions are made about the agency behind the formation of what, in practice, are exchange networks. The situation is complicated by the presence of more (but not extensive) data. It is challenging to find a middle ground between theory modelling and detailed structuring of data (data modelling), from which agency is inferred rather than assumed. In this talk we shall discuss one approach using a (13,000+ artefact) data set from Late Bronze Age (LBA) Crete put together by one of us (PG) from published catalogues. This data is too much for generic modelling but (with only 1000 ‘useful’ artefacts) too little for data modelling. Nonetheless, combining the data with geography, technology, assumptions about artefact function and general network analysis provides a dynamic avenue through which to explore the role of key Cretan sites during the LBA.


Aegean connections in context: appropriation of urban culture in the Mycenaean Greece
Piotr Zeman (Adam Mickiewicz University in Poznan)

Urbanization, as a social process can be defined in a systematic and relational way, in which it occurs within a closed system, and focuses on the development of functional and structural differences between and inside various settlements. Urbanization understood in this way undoubtedly took place in mainland Greece during Late Bronze Age (Late Helladic phase in local chronology, ca. 1700-1050 BC), with the gradual centralization of administration and economy around the Mycenaean palaces. This led to a distinction of the palaces in the settlement network and the development of lower towns,
which together created entities that can be termed palatial towns, with internal structural, functional and social divisions, and a key role in the regional settlement network. This process created an urban culture that was never before present on the European mainland. This paper draws on data from five known and previously researched palatial sites (Dimini, thebes, Mycenae, Tiryns and Pylos) to illustrate how urbanism during this period was shaped by two factors: 1) the extent of interactions across the Aegean, particularly with Cretan palatial settlements and 2) the local unique character of the Mycenaean palatial town in comparison with Near Eastern and Minoan centers. From the beginning, the development of Mycenaean palatial towns was impacted by contacts within the Aegean sea. Specifically, Minoan Crete, which at the time dominated the region, not only influenced Early Mycenaean material culture, but also at least indirectly affected the political situation and socioeconomic changes on the mainland. This cycle of contacts goes beyond a simple center-periphery model, with Mycenaean playing an active role in reshaping observed patterns as well as ultimately dominating Crete. Acceptance of multiple Minoan cultural traits by the Mycenaean elite included the superficial transfer of the palatial social and economic system, which was however re-appropriated according to local conditions, possibilities and needs. It seems that the Minoan idea of a palace was reshaped to serve a specific purpose of formalizing power. This led to the formation of unique, small scale urban centers heavily entangled with the elite residences and funerary architecture. In comparison with Minoan palatial sites, Mycenaean communities appear to have been dominated by the palaces rising over them. This social dynamic is represented archaeologically in two features: first, massive fortifications are found separating the elite zone from the rest of the community, and second, the elite zone comprises a proportionally large component of the overall settlement size. The Mycenaean warrior-centered identity also evolved, becoming part of a new palatial culture. The latter included ideology of power focused on the king (wanax) and an urbanized hierarchical settlement system, centered around palatial towns. It was the constant interference of cultures existing around the Aegean sea, that made those changes and formation of a unique Mycenaean urban culture possible.

Seafaring Poems in Pindar’s Epinicia and Encomia

Thomas Kuhn-Treichel (Universität Heidelberg)

One of the most salient features of the poetic ‘I’ articulated in Pindar’s poetry can be seen in its ability to establish connections between otherwise disconnected entities, e. g. between persons separated by time or space, between the dead and the living, or between humans and gods. When it comes to people separated by space, the act of connecting is often represented as a movement of either the poetic ‘I’ or the poem itself. Some remarkable cases of the latter kind involve the sea: In P. 2.67sq., the poem is ‘being sent’ to Hieron of Syracuse ‘like a Phoenician merchandise over the gray sea’ (τόδε μὲν κατὰ Φοῖνικαν ἔμπολαν / μέλος ὑπὲρ πολιάς ἀλὸς πέμπετα). In N. 5.2sq., the song is summoned to ‘go forth from Aigina on board every ship and in every boat’ (ἐπι πάσας ὅλακος ἐν τί· ακάτω, γλυκεὶ ὀδοῖα, / στεῖχ’ ἀπ’ Αἰγίνα). A slightly dubious case is Enc. fr. 124ab.1sq. M., where the ‘vehicle of lovely songs’ is being sent to Thrasyboulos of Akragas (ἐρατῶν ὄχημ’ ἰχθοῖν / τοῦτο <τοι> πέμπω; interpreters tend to take όχημα as chariot rather than ship, but even so one is to imagine a movement across the Mediterranean). This paper is not so much interested in the historical reality lying behind this type of song-journey motif but in the sense of connectivity the passages convey. Special attention will be to the role ascribed to poetry: All of the three passages, with differences in detail, are based on the idea of poetry establishing connections across the Mediterranean (one-to-one connections in P. 2 and Enc. fr. 124ab, a one-to-many connection in N. 5). Aspects to be discussed in this context include the relation between seafaring and poetic communication and the interaction between the moving poem and the (seemingly) stationary poetic ‘I’ (which is in fact moving with its poem). A case of special interest is Enc. fr. 124ab, where the metaphor of the vehicle is continued by a first-person plural statement about swimming ‘in the sea of golden wealth to an illusory shore’ (πελάγει δ’ ἐν πολυχρύσοι πλούτου / πάντες ἴσᾳ νέομεν). Acceptance of multiple Minoan cultural traits by the Mycenaean elite included the superficial transfer of the palatial social and economic system, which was however re-appropriated according to local conditions, possibilities and needs. It seems that the Minoan idea of a palace was reshaped to serve a specific purpose of formalizing power. This led to the formation of unique, small scale urban centers heavily entangled with the elite residences and funerary architecture. In comparison with Minoan palatial sites, Mycenaean communities appear to have been dominated by the palaces rising over them. This social dynamic is represented archaeologically in two features: first, massive fortifications are found separating the elite zone from the rest of the community, and second, the elite zone comprises a proportionally large component of the overall settlement size. The Mycenaean warrior-centered identity also evolved, becoming part of a new palatial culture. The latter included ideology of power focused on the king (wanax) and an urbanized hierarchical settlement system, centered around palatial towns. It was the constant interference of cultures existing around the Aegean sea, that made those changes and formation of a unique Mycenaean urban culture possible.

Maltese connections: remarks on cultural identity starting from the architectural language between the 4th and the 3rd century BC.

Francesca Bonzano (Catholic University of the Sacred Heart, Milan)

The analysis focuses on the architectural culture developed in the western Mediterranean area between the 4th and 3rd century BC. Specific case study is the Maltese archipelago, part of the Carthaginian eparchy until the Punic Wars. Contrary to conventional wisdom, which identifies the “Punic-Hellenistic” period with a period of stagnation in the shadow of Carthage, recent analyses show the cultural vitality and complexity of that phase, with the development of original solutions in a context that was naturally inclined to exchanges and contaminations and also to the typical insular features. In order to understand such context – that has no accurate basis for comparison due to the above-mentioned reasons - it is crucial to broaden the perspective to what happened in the western Mediterranean area, thus identifying the specific elements of
a language under various influences yet at the same time deeply rooted in its cultural identity. The Tas-Silġ sanctuary, located close to one of the most important harbours in Malta, the port of Marsaxlokk, was a place of worship frequented since the Neolithic. Without interruptions, it was later chosen by the Phoenician people who colonized the archipelago. There, using part of the previous sanctuary, they established an international place of worship dedicated to Astarte. The conservation of the main megalithic temple is a tangible trace of the conservatism that permeated the site during the whole historical period. If the Phoenician phase is difficult to reconstruct in detail due to the subsequent changes, the 4th-3rd building phase strongly remodels the sacred landscape of the hill and applies original solutions of great interest in an area—the Punic religious architecture—which is not popular at all. Though many elements testify the connection with the Siceliot area (the presence of the altar with the cippi and the platforms for the offerings, the Doric capitals), the Egyptian influences are not only recognizable from the consolidated features of the Punic architectural language (cavetto mouldings), but also from solutions that have no accurate basis for comparison, like the capitals with double cavetto crown mouldings and the composite shapes used for minor architecture. Furthermore, the exquisite Eolic lesene capitals are of great interest: their smooth carving and the plasticity of the vegetal elements, together with the emphasis on the decoration, make the Maltese pieces stand out from their coeval examples (e.g. Tharros) and show strong similarities with the later capitals of the Mausoleum B of Sabratha. Therefore it is possible to hypothesise the presence of a common (Alexandrine) model, which is currently missing. The multiplicity of cultural traditions involved in the Maltese context finds a new meaning in the general concept that, together with the prehistoric pre-existence and its local peculiarities, connotes the religious identity of the place of worship and its frequenters, who recognize the international vocation of the sanctuary. At the same time such dynamism is included in a greater flow of models. Though following common trends, it creates new and significant solutions for the local culture in the western Mediterranean area; to some extent it anticipates the eclectic architectural language that will characterize the well-known elements of the so-called Numidian royal architecture.

Chalcidic connectivity between Sithonia and Pallene: transmutations of epichoric identity and resilience through environmental sustainability in the long 5th and 4th c. BC.

Maria Xanthou (Harvard Center for Hellenic Studies)

Until 4th c. BC, the coastal region between Sithonia and Pallene and its hinterland formed a complex geographic space, inhabited by communities with mixed identities. Despite being heavily excavated, this region remains understudied in terms of connectivity, identity, and alterity. So far, its history has focused on Potidaea and Olynthos and their relations with Athens and Macedon. Since their foundation, these two urban clusters occupied significant geographic sites with Potidaea being built on a much-coveted site, right on the Isthmus of Pallene, overlooking Thermaicus and Toroneaus Gulf, while Olynthos lies on two elongated hills situated in a valley, about 2.5 km inland from the sea. Apart from D. M. Robinson’s excavations, Olynthos is also known through the 5th c. BC literary sources (Thuc., Xen.) due to its role as refugee hub (Thuc. 2,70,4; 4,123,4). During the last quarter of the 5th c. BC and the beginning of the 4th c. BC, Olynthos benefitted greatly from the resettlement of inhabitants coming from other coastal cities, thus resulting to its enlargement and the foundation of a federation transcending ethnic and epichoric barriers, the Chalcidic League. Although originally founded as a Corinthian colony, Potidaea eventually became a member of the Athenian league after a two-year siege by the Athenians, its inhabitants’ eventual capitulation in 430/429 BCE, and the loss of its original inhabitants. The town was ultimately resettled serving as a major focal point for the Athenians during the Peloponnesian War. In the post-Peloponnesian war era, Potidaea was returned to its former inhabitants. It became a member of the Chalcidic league, and it was chosen by Spartans as a base during their war with Olynthos. Later, it was captured by Athens, inhabited by Athenian kleírouchoi, and, was conquered by Philip, who enslaved the non-Athenian inhabitants and rendered the city to the Olynthians. After its utter destruction by Philip, Olynthos and the region formed the polis territory of the new foundation of Cassandreia. The paper sets out to examine the potential link and affinities between these cities and to trace the geographic and social dynamics that were developed between them as geographically-bounded entities. In that sense, it explores the geographic interaction and spatial synergy between the coastal zone and the mainland in Northern Greece. Along these lines, I take as my starting point Hornblower’s (2010) argument of a blurring and mixed Chalcidic identity, which was deepened and furthered through the aforementioned synergy. The aim of the paper is to offer a new appreciation of this geographic region and to emphasize the dynamics of regional communities, coastal areas and the sea, focusing on the mixed identities of Potidaea and Olynthos. My critical analysis focuses on the resilient, symbiotic relation enjoyed by the two cities since the Peloponnesian war. Towards this goal, I examine the interactive relation of the cities in question, aiming to introduce an integrated, multi-disciplinary approach to the crucial geographic and historical factors that largely defined them as integral parts of the Chalkidic region, which ultimately formed Cassandreia.

Ovid’s Identity as Exiled Poet

Stefan Feddern (Assistant in Classics (Latin Philology), CAU Kiel)

In the age of 50, Ovid was exiled from Rome (8 AD) by Augustus and relegated to Tomis,
situated at the Pontus Euxinus, at the north-eastern frontiers of the Roman Empire, where he arrived almost one year later and where he died in 17 or 18 AD. During his exile, Ovid wrote nine books of elegiac poems, the Tristia (5 books) and the Epistulae ex Ponto (4 books), in which he often compares himself with figures of the Greco-Roman myth, especially with Ulisses (trist. 1,5; Pont. 4,10) and Jason (Pont. 1,4). In my paper, I want to examine these comparisons as expressions of a struggle for identity, given that Ovid grew up and passed the main time of his life in the political-religious atmosphere of Rome and deplores his exile among barbarians as a totally different and depressing cultural surrounding. Ovid’s representation of his desolate situation must be seen as the result of the geographical fact that he is excluded from the Mediterranean world, and his comparisons with mythical figures as reference figures are likely to reflect his wish to keep his former identity.

To be Greek or not to be: about the “Greekness” of Epirus and Southern Illyria. An overview through urbanism and theatrical architecture in a Mediterranean perspective.

Ludovica Xavier de Silva (“Sapienza” University of Rome – Department of Classics)

Studying theatres can provide an interesting perspective in order to understand how communities saw themselves and which cultural network they were part of. The interest in theatrical buildings in Epirus and Southern Illyria is tied to the ongoing debate about the urbanisation of the territory. Moreover, their theatrical building process has been dated during the reign of Pyrrhus or shortly after, a moment in which the territory was more projected towards a Mediterranean dimension than ever.

It has been suggested that the name Epirus itself may have origin from a “maritime perspective”: a land seen from the sea, from a colonial point of view. This must have been the perspective of Greek colonists, a polis perspective, different from the urban organisation of the hinterland.

It is well known that polis’ administrative, political and cultural concept was reflected in the creation of a specific urban panoply and that this very idea of a polis seems to have been, for the Greeks of the mainland, a discerning characteristic in their approach towards identity and alterity.

Moreover, an important connection has to be established with the Adriatic context, specifically with Magna Graecia and Sicily. The relationship with these territories not only has to be seen in a commercial and artistic-architectonical perspective, which has lead to the identification of a so-called “Adriatic koine”, but also in relation to the identity building process of these communities. As a matter of fact, the strong connection between Pyrrhus politics and ideological propaganda and the so-called Western Greeks it is a well-known subject. Being also Magna Graecia and Sicily lands where theatres have been the object of a flourishing architectural experimentation, the perspective here proposed can represent an interesting approach.

Thus, studying theatres and their architectural and morphological features, as well as analysing their position and functions, can provide important data in order to answer some essential questions. What role did these buildings have in the cities and in the territory addressed? Did these theatres have characteristics or features that might give them a proper Illyro-epirote identity instead of a Greek one? Did the Epirotes see themselves as Greek and, if so, to what extent did they involve the connection between Greek identity and the polis in their self-representation? Did these buildings share characteristics that are common to the entire Adriatic network? Which analogies and/or differences can we establish between the self-representation, especially if connected to a specific idea of urban organisation and planning, of the Western Greeks and the one of the Epirotes and Southern Illyrians? To what extent an identity concept tied to a specific form of urban development actually shaped the landscape and/or met a local resistance to it and which differences can be detected in this process from the Hellenistic period to the Roman one?

Black Sea networks, monumental burial traditions and elite display in the late Classical and early Hellenistic period

Jane Rempel (University of Sheffield)

The ancient Black Sea was not only physically connected to the Mediterranean but also a conduit for trade and cultural interaction between the two regions, beginning in earnest with the foundation of early Greek settlements in the seventh century BCE and increasing with the interests of Athenian empire in the fifth century BCE. By the fourth century BCE, the rise to prominence of new or newly dominant regional powers meant that the communities living around the Black Sea were part of emerging and sometimes volatile networks that included the Aegean region but also the Balkans, the Eurasian steppe, the Caucasus and Anatolia. This paper will discuss the intersection of these networks through the lens of the monumental burial traditions that became prominent in the Black Sea – as well as the Aegean – during the fourth century BCE.

The massive burial mounds, architectural chamber tombs, lavish gold and silver grave assemblages from especially the western and northern regions of the Black Sea, but also found in the eastern and southern areas, have been well-studied in the context of Scythian, Thracian, Colchian cultural traditions. A significant lacuna, however, is the way in which monumentalising burial practices and strategies of elite display developed contemporaneously in the coastal, primarily Greek, settlements of the Black Sea. By shifting focus from regional variations to a holistic view of the mounded, archi-
tectural or otherwise monumental burial traditions around the Black Sea, the interaction and connectivity of elite networks associated with, but not exclusive to, ancient Greek settlements around the shores of the Black Sea emerge. In particular, this paper will discuss case studies from the south coast (Turkey), in order to tease out the ways in which local particularities and regional relationships intersect with the wider Black Sea network of elite display. The evidence for monumental mound and architectural burials from around the coastal settlements of Sinope and Amisos will be considered as key components of a network that not only responded to adjacent Paphlagonian and Pontic practices of monumental burials but also connected the region to a larger Black Sea vocabulary of elite display.

**Sea routes of amber around Europe. The dynamics of Baltic amber distribution during the 11th millennium BC**

Janusz Czebreszuk (Institute of Archaeology, Adam Mickiewicz University in Poznań, Poland)

The problem of the Baltic amber (succinate) reaching the Aegean (since the first half of the 11th millennium BC) is one of the mostly discussed issues regarding the relations of the Mediterranean with other parts of Bronze Age Europe. Marine routes are the key factors in these considerations. Following presentation is focused to discuss the main essential aspects concerning the role of the marine contacts in spread of the amber, both through the Mediterranean Sea as well as the seas encircling Europe from west and east – up to the Baltic Sea.

**A sea of wine and honey. Immaterial connections and networks of narratives in the Hellenistic Western Mediterranean**

Rafaela Da Vela (Gastwissenschaftlerin Historisches Seminar Universität Leipzig, Lehrstuhl für Klassische Archäologie)

The political, economic and structural turmoil of the Western Mediterranean between the 4th and 2nd century BCE is reflected in the narratives of many literary sources, labelling events as Punic Wars or Celtic invasions. An archaeological approach to the materiality of this area, in particular to the archaeological record of the coastal centers, shows articulated patterns of interaction. The widespread of some ceramic forms and the recurrences of patterns in funerary assemblages cannot be easily labelled under terms such as koiné or ‘romanization’. Global factors and local peculiarities are strongly entangled, as the multivariate analysis of grave contexts of emerging elites from coastal and subcoastal centers illustrates. The focus of this paper is the emergence of a shared international narrative or symbology of social identities in the coastal centers of the Western Mediterranean based on reflected or constructed consumption of luxury goods, such as wine or honey in grave contexts. Iberian kalathoi in many coastal contexts of Liguria, Etruria, Corsica and Sicily; the huge Campanian kraters at Cartagena (Spain) and the amphorae used as case for cinerary urns in the Ligurian necropoleis are just some of the characteristic markers of a wider immaterial system of communication of social identities. To allow a comprehensive analysis, the archaeological records of the coastal and subcoastal necropoleis of Tarquinia, Orbetello, Populonia, Castiglione, Ameglia, Aleria, Genua, Ensérune, Ampurias, Cerro del Santuario (Cartagena), Lilibeo, Taormina, Neapolis and Taranto are examined quantitatively and qualitatively with the Social Network Analysis (SNA). The relational approach of the Social Network Analysis is not linking together places on the base of pottery records, but is directed to detect common patterns of Western Mediterranean Elites in terms of narrative of power and social identities. A two-mode network of the grave goods, in which each center gets related to the use of specialized pottery forms, allows the analysis of immaterial connections of the international communication code of local emerging elites. In particular, the semantic interlocked network of pottery attesting consumption of wine and honey aims to point out analogies and differences in the communication patterns of social habitus. The specificity of local patterns and the reference to international models will be contextualized in the structure of the local communities through the comparison between wider distributed patterns of behavior and local specificity. The analysis aims to answer the following research questions: how did Mediterranean connectivity and commodity chain influence the material expression of identities of local elites? Which is the relationship between the Western Mediterranean regional networks and the local identities? How did specific local social structures and international fashion interact to construct ‘glocal’ narratives of power? And finally, which is the role played by the network in the conservation or transformation of local identities in front of the unification of the economic and institutional systems?

**Archaeology and Syrian Identity: ‘Urkesh Gate’ a good Tale from Syria**

Keynote lecture: Hiba Qassar (PhD in museum studies, AVASA)

Tell Mozan, ancient Urkesh, is an archaeological site located in North-Eastern Syria, a region well known for its rich ethnic and religious diversity. Prior to the conflict, an eco-archaeological park in tell Mozan pictured an area of 54km square and engaged 20 modern villages. One of the various aspects of this park was to focus on the local society and bring cultural, social and economic benefits to local community. Urkesh Gate project was a small part of the whole vision and was dedicated to strengthen local women.
This paper will discuss the role of archaeology in Syria in constructing diversity among the Syrian society. It will argue how Syrian identity was constructed, and the changes it went through during the last years of war. It will then present the role of archaeology in constructing inclusive identities through the case of Tell Mozan, ancient Urkesh. Finally, through the case of Urkesh Gate, it will present the impact of fostering archaeological knowledge and engaging locals on the Syrian identity.

**Territoriality in Europe in the Bronze and Iron Age**

*Wednesday March 13th until Friday March 15th, Room 106*


**WED** 15:30 **POSTER SESSION** Spatial-comparative analysis of archaeological sites from Late Neolithic and Early Bronze Age in north-western Poland

Marcin Ławniczak (Adam Mickiewicz University - Poznań, Poland)

**THU** 13:30 **Discussion**

13:30 **Territoriality in Southern Europe in the Bronze and Iron Age**

*Keynote lecture: Simon Stoddart (University of Cambridge)*

14:20 Settlement structure and pit zone alignments in north-western Jutland, 800-200 BC

Astrid Skou Hansen (Holstebro Museum)

14:40 No borders, no nations: linear earthworks in pre-christian Southern Scandinavia

Arjen Heijnis (Aarhus University)

15:30 15:30 **Iron Age Territories in Central and Northern Europe**

Oliver Nakoinz (JMA, Kiel University)

15:50 **Celtic Fields in Schleswig-Holstein and Denmark - Status of Research**

Volker Arnold (retired, former: Museum for Archeology and Ecology Albersdorf)

16:10 Linking Bronze Age agricultural innovation with the allocation of land for crop growing in northern Germany

Wiebke Kirleis (Institute for Prehistoric and Protohistoric Archaeology, Kiel University)
**SESSION 8**

16:30 Territoriality and social complexity in the North-West of the Mediterranean during the Iron Age: a multidisciplinary perspective  
Silvia Valenzuela-Lamas (Consejo Superior de Investigaciones Científicas (CSIC-IMF))

16:50 Discussion

**FRI 08:30** Separated by time and distances? Borders and distinct cultural regions in the south-west Baltic area during the LN/EBA transition  
Hendrik Raese (Institute for Prehistoric and Protohistoric Archaeology, Kiel University)

08:50 Modelling the political structure of the Koscian Group of Unetice culture  
Janusz Czebreszuk (Institute of Archaeology, Adam Mickiewicz University in Poznań, Poland)

09:10 The matter of border – transition from the Late Neolithic to the Early Bronze Age in the Lower Oder Region  
Sebastian Teska (Adam Mickiewicz University)

09:30 Barrows landscape. Comprehensive research on funeral rites from the Bronze Age on the borderland of Silesia and Greater Poland (Las Krotoszyn)  
Mateusz Stróżyk (Poznań Archaeological Museum)

09:50 Discussion

10:30 Singen revisited. Gender-related Mobility Patterns and Territoriality in Early Bronze Age Central Europe  
Julia Katharina Koch (CRC 1266, Kiel University)

10:50 Late Bronze Age settlements in the eastern part of the Great Hungarian Plain  
Polett Kosa (Eotvos Lorand University, Institute of Archaeological Sciences)

11:10 Settlement network in Bronze Age of southern carpathian basin  
Hrvoje Kalafatić (Institute of Archaeology, Zagreb, Croatia)

11:30 Spatial organization and territorial control in South Sardinia (Italy) during Bronze and Iron Age  
Valentina Matta (Aarhus University)

11:50 Discussion

13:30 Violent Build-Up: How Population Concentration in Iron Age Southern Scandinavia Resulted in Increasing Military Conflict  
Timmis Maddox (Independent)

13:50 Discussion
ABSTRACTS

Territoriality in Europe in the Bronze and Iron Age

Keynote speaker: CS. Stoddart, University of Cambridge

Territoriality has become a viral research topic, and it raises questions about the nature and (dis)continuity of settlement areas, which are the focus of our session. Different modes of spatial occupation characterised the Bronze and Iron Age in Europe, ranging from farmsteads and groups of burial mounds to (political) territories, as indicated by the ‘Celtic fields’, cooking-pit fields, linear structures, and fortifications, as well as by palaeoenvironmental and economic proxies. This session aims to explore how different types of territorial organisation shape the spatial system of interaction. Do parts of the landscape represent areas of influence or even “territory”, to which the (economic) activity of individuals or communities were limited? Are there aspects of landownership and property rights that are detectable in the archaeological record? We are also interested in the temporal aspects of the settlement locations. Is there a long-term, continual bond between the settlement areas and the visible inhabitants, despite some evident changes in the agricultural regime and material culture? Were there changes in land-use, such as in the intensity of crop cultivation, or a shift of economic focus from plant to animal husbandry (pasture farming), or different strategies of animal husbandry? Can these be connected to specific modes of spatial organization? These aspects touch on social interaction shaped by territoriality (and vice versa) and we wonder whether territoriality caused conflicts, or if it helped reduce/resolve them? Did territoriality emerge as a result of population growth? We are especially interested in discussing the following aspects:
• Modelling of settlement and funerary landscapes
• Pollen data and soil morphology as a basis for the reconstruction of landscape use
• Spatial analysis in relation to regional settlement dynamics
• Small-scale/local human mobility

We invite contributions addressing case studies, indicators, models, theories and interpretations from the following, but not limited to, fields of study: material culture, archaeobotany, archaeozoology, soil science, archaeometrics, palaeoentomology, stable isotopes, modelling, spatial analysis, and ethnography.

POSTER SESSION: Spatial-comparative analysis of archeological sites from Late Neolithic and Early Bronze Age in north-western Poland
Marcin Ławniczak (Adam Mickiewicz University Poznań, Poland)

The AZP (Archaeological Picture of Poland) program, conducted since ’70s in the form of field survey, covered whole country and enabled locating of nearly a half of a million archaeological sites. Unfortunately, these data are still in analogue form and have not been digitised. As a part of the project „The Late Neolithic and Early Bronze Age in Southwestern Baltic area (2500-1500BC). Why did Bruszczewo-Łęki Male type of power structures appear?” Late Neolithic and Early Bronze Age archaeological sites from north-western Poland have been digitised. The total number of 15 000 of archaeological sites were divided into chronological units such as Funnel Beaker Culture, Globural Amphora Culture, Corded Ware Culture and Interstage Neolithic and Bronze Age. In addition, the whole research area was divided into separate parts, within which spatial analysis (slope, aspect, distance to river etc.) were carried out. Results obtained for each chronological unit were listed as percentage scores and compared with each other with respect to their spatial and chronological features. That gave an opportunity to notice settlement patterns and their variability in time and space.

Territoriality in Southern Europe in the Bronze and Iron Age

Keynote lecture: Simon Stoddart (University of Cambridge)

This paper analyses the distinctive features of Mediterranean territoriality in the first two millennia BC, concentrating on the Italian and Greek peninsulas, and where possible, the intervening spaces of sea. Issues such as cyclicity and stability will be addressed against the different environments provided by these two distinct regions and their subregions. A short history of the application of territoriality will be given, not least because both regions have witnessed important theoretical and methodological innovations, notably different models of economic, social and political development and extensive survey data sets. These increasingly open access data sets were often collected from extensive agricultural zones by large survey teams. Of the themes proposed by the session the following themes will be particularly addressed: Modelling of settlement landscapes. Pollen data as a basis for the reconstruction of landscape use. Spatial analysis in relation to regional settlement dynamic. For this purpose, big data sets of settlement sites, pollen cores and radiocarbon dates, collected recently by scholars will be deployed to understand the changing features of the Italian and Greek landscape. Questions will be raised about the degree to which nucleated centres controlled their apparent territories and what this might imply about political control of the landscape. To what extent did territoriality revolve around these major
nucleated settlements? To what extent did rural settlement contribute to the organisation and exploitation of the territory? What was the degree of mobility between different nucleated centres and between city and countryside? A number of case studies will be developed to flesh out the broader trends of territoriality in these two key millennia of human development.

Settlement structure and pit zone alignments in northwestern Jutland, 800-200 BC
Astrid Skou Hansen (Holstebro Museum)

Over the past years, our knowledge of the settlement structure in northwestern Jutland, from the late Stone Age to early modern times has grown extensively, due to large-scale excavations, aerial archaeology and metal detector finds. The area north of the river Storå is interesting, as it sits at the very edge of the Weichelian ice sheet. This means that the inhabitants had access to both resources associated with the sandy heath to the south, and the heavier moraine soil to the north. During the late Bronze Age and earliest Iron Age, the settlement pattern in the area consists of small, single or double farm settlements. These settlements were scattered throughout a landscape dominated by both natural demarcations i.e. river valleys, and by monumental sacral structures i.e. clusters and rows of burial mounds. This pattern changes with the emergence of larger settlements during the 4th century BC. The establishing of larger settlements coincides with the construction of several pit zone alignments, thus indicating either a rethinking or a reinforcement of the perception of the landscape by the inhabitants. In this paper, I wish to present a case study, giving an example of the changes in land-use occurring during the middle of the first millennium BC and the derived change in spatial organization. I will also touch on the interrelation between social dynamics and resource use, as it applies to the interpretation of the spatial analysis.

No borders, no nations: linear earthworks in pre-christian Southern Scandinavia
Arjen Heijnis (Aarhus University)

Various linear earthworks appear in the archaeological record of Iron Age Southern Scandinavia. Particularly the Jutland peninsula features the site types ‘pit zone alignments’ and ‘long walls’, though neither of those feature types are exclusive to this region or time period. But can these monuments be considered as evidence for a territorial landscape division on a military/political basis, in parallel with defended frontiers of more southern early states? And how do these constructions relate to the landscape modifications of agricultural society, such as barrows and ‘celtic fields’? Two newly available sources of information can challenge longheld assumptions on the role of these features in the societies that produced them: the recent high-resolution LIDAR map of Denmark and the digital availability of reports from over a century of local fieldwork. These reveal that conceptions of Iron Age territoriality are sometimes based more on the presumptions of the researcher, than in firm archeological data.

Iron Age Territories in Central and Northern Europe
Oliver Nakoinz (JMA, Kiel University)

Territoriality is a much discussed issue in prehistory and history. Currently it is again a burning topic for Bronze and Iron Age research. This talk first presents some basic concepts and facts on territories including a definition and the role of territories in social contexts. Different types of territories are discussed as well as the relevance of territories in different research approaches such as central place research. The theoretical considerations end with some comments on using models. Finally, theoretical and empirical models of territories from South West Germany and Denmark are presented.

Celtic Fields in Schleswig-Holstein and Denmark - Status of Research
Volker Arnold (retired), former: Museum for Archeology and Ecology Albersdorf

Surface Lidar data, more and more publicly available, cover increasing areas in a sufficient quality. They lead to knowledge of numerous Celtic Fields in Schleswig-Holstein and Denmark: small more or less rectangular close-packed field parcels forming coherent systems, which are still recognizable on favourable terms. Meanwhile more than 1000 Systems are registered mainly in ancient forests, in Denmark also in actual and forested heathland. More than 50 systems cover more than one square kilometer: distinctive territories, whose outer borders were subject of dynamics and remain thus vague. Otherwise system sizes are found sometimes which may be cultivated by only one single farm. Prevailing on sandy soils at least parts of the parcel borders seem to be created in form of narrow embankments. Obviously longtime ploughing and cultivating lead to increasing raising and widening of the parcel borders of its own volition, combined with an increasingly through-like form of the parcels. An investigation of a faintly pronounced parcel border in the Riesewohld forest, Dithmarschen, came to a cultivation span of ca. 600 years. Dates from other systems resulted in similar or even longer time spans. Regularly traces of manuring are found in the ploughed soil of the parcel borders in the form of intensely broken house litter. The wide layout diversity of
the systems is mainly dependent on soil type and relief. Thus there are main differ-
ences in upper and lower moraine areas. An overall development becomes apparent
from more or less quadratic parcels to narrow oblonge-sized ones. While the former
were ploughed crosswise with ards as proved occasionally, extremely long and small
parcels may be cultivated bidirectional possibly by a mouldboard plough. Small ridge-
and-furrow systems were created respecting the old Celtic Field parcel borders in some
Danish systems, which may indicate a partial continuity over the “dark ages” after the
migration period. It remains still vague which and to what extent parcels lay fallow or
were used as pastures. Anyway, the forming of the parcels may be much more a result
of soil cultivation than of grazing. A further scope of duty is the dating of the systems
and their usage periods. Certainly insufficient first dates cannot exclude that Celtic
Fields may origin during the early Nordic Bronze Age, though the known buildings
show still no evidence of stables. Definitely they are present since the younger Nordic
Bronze Age, together with the beginnings of indoor housing of animals, which could
be initiated by climatic decreases and is evident by changed house layouts. Contempo-
rarily a stationary agriculture was possible over centuries which may have replaced
prevailing migrating cultivation. Animal housing leads to an accumulation of manure,
bedding and litter which was spread at the parcels for fertilisation, together with soil
material prevailing from wet grounds. All this represents a coequal change to the
agraric “revolution” at the beginning of the neolithic.

Linking Bronze Age agricultural innovation with the allocation of land
for crop growing in northern Germany

Wiebke Kirleis (Institute for Prehistoric and Protohistoric Archaeology, Kiel University)
Co-authors: Dragana Filipović1, Almuth Alsleben2, Henrike Effenberger3

1 Institute for Prehistoric and Protohistoric Archaeology, CAU Kiel
2 Almuth Alsleben, Academy of Science and Literature, Mainz, Schleswig
3 Henrike Effenberger, Effenberger Archäobotanik, Droge

Intensive archaeobotanical investigations on prehistoric sites have recently been
carried out in northern Germany within different research programmes, i.e. at Kiel
in the frame of SPP1400 and CRC1266, and within the programme “Settlements of the
Bronze Age” at the Academy of Science and Literature, Mainz, in Schleswig. Combined
with the high-resolution absolute chronology, the qualitative and quantitative archae-
obotanical data for the period from the Neolithic to the younger Bronze Age now offer
a comprehensive picture of the development of crop production. In particular, towards
the younger Bronze Age, numerous newcomer crops broadened the spectrum. Each
crop species possesses particular traits and has specific preferences e.g. with respect
to soils and water access. The different needs may account for specific management
systems. While oil plants and legumes seem to be garden crops, most large-seeded
cereals are associated with extensive cultivation with low labour input. The analysis
of certain characteristics of arable weeds allows us to identify different scales of crop
growing, from intensive to extensive, and its seasonality, i.e. growing of summer or
winter crops. Different crop and weed species have different needs for successful
growth and these may be interpreted in relation to the allocation of specific areas and
plot sizes to particular crops. We will present the development of the spectrum of crops
and corresponding weeds over time and discuss innovations and changes in the light
of different modes of spatial organization reflecting different modes of agricultural
production.

Territoriality and social complexity in the North-West of the Mediterr-
anean during the Iron Age: a multidisciplinary perspective

Silvia Valenzuela-Lomas (Consejo Superior de Investigaciones Científicas (CSIC-IMF))
Co-authors: Nieto-Espinet, A., Trentacoste, A., Guimarães, S.

Recent archaeological and bioarchaeological research has provided new insight into
the organisation of production in Iron Age communities in present-day Catalonia
and southern France. In this context, increasing territoriality and social complexity
had significant consequences for the development of this area. This contribution will
provide a synthesis of the changes in material culture, settlement pattern, archae-
ozoological, archaeobotanical, and isotopic data from the 7th to the 3rd c. BC in the
north-west of the Mediterranean basin. These data suggest that the introduction and
spread of iron technology was accompanied by a notable increase in population. This
 technological change, coupled with the spread and influence of Mediterranean trade,
had profound consequences on animal husbandry and the socio-political organisation
of the Iron Age communities in the region.

Separated by time... and distances? Borders and distinct cultural
regions in the south-west Baltic area during the LN/EBA transition

Hendrik Raese (Institute for Prehistoric and Protohistoric Archaeology, Kiel University)

In the south-west Baltic region and especially in Mecklenburg-Western Pomerania
and northern Brandenburg, generations of archaeologists have collected a wealth of infor-
mation on single and stray finds, burials and hoards from the Late Neolithic and Early
Bronze Age. A number of studies by different researchers indicated on these discov-
eries that a significant interaction with the Early Bronze Age Śtětině culture to the
south took place in this area during the local Late Neolithic (~2400-2000 BCE) which
is visible not only in the material culture. The proper establishment of the Early and
Older Bronze (~2200-1500 BCE) in the region meanwhile shows a shift in contacts to
the Nordic Bronze Age in the North-West. Recent results from the “Beethoven”-project – which is jointly based at the universities of Poznań and Kiel and studies the transition from the Late Neolithic to the Early Bronze Age and the formation of power agglomerations in the south-western Baltic area – display a distinct separation of stray finds and hoards with metal objects connected to the Únětice culture and the Nordic Bronze Age. The distribution of the metal hoards seems to indicate a sharp border between the different zones of influence and therefore could be interpreted as markers of territoriality. This poses the question of whether the different sources of influence are only to be found in the distribution of metal finds or, beyond that, also in the other types of finds and their distribution. By quantifying the variability of the total material culture, it shall be discovered if the impact of the origins of the metal finds affects more than just the local hoard customs. Additionally, an assessment of the effect of environmental variables (e.g. slope, aspect, soil, etc.) by using a predictive model will be presented. Based on the model it should be possible to decide if the settlement system in the region is influenced by more than nature and maybe in the same way disrupted as the hoard distribution.

**Modelling the political structure of the Koscián Group of Únětice culture**

*Janusz Czebreszuk (Institute of Archaeology, Adam Mickiewicz University in Poznań, Poland)*
*Co-Authors: Johannes Müller, Marzena Szmyt, Mateusz Jaeger*

Just a brief look at the distribution of the finds of Únětice culture suggests that the Koscián Group stands as a clearly outlined unit in terms of its spatial extent. It is situated on the northeastern edge of the Únětice world, thus emphasizing the specific of the discussed group. Regarding the recently proposed hypotheses concerning the political aspect of the Únětice world, we may ask if the present state of the observed archaeological data concerning the Koscián Group, reflects the political aspects of this Early Bronze Age societies. This question is the key point in the following presentation and considerations.

**The matter of border - transition from the Late Neolithic to the Early Bronze Age in the Lower Oder Region**

*Sebastian Teska (Adam Mickiewicz University)*

The Lower Oder Region in a dawn of the Bronze Age was dominated by the phenomenon of Corded Ware Culture in its local variation. Despite incremental influence – firstly, from Bell Beaker Culture, then from Únětice Culture – transition point between two periods cannot be distinguished doubtlessly. Also the course and the pace of cultural changes is still not clear. Moreover, there is a matter of the Oder River and its role as a route or border for development of rising Early Bronze Age communities. Nevertheless, increasing amount of data as well as a constant development of methods and tools gives a chance to make a huge leap in studies of those issues. Especially, the last one. The basis for discussion were results of morphometric analysis of ceramic vessels from funerary context, which indicated that there might be a chronological incoherence among general vessel shapes between territories laying east and west of the Oder. This hint led to detailed comparative analysis of graves and their inventories, deposited in a period 2300-1800 BC. Further comparison was based on constantly growing database of radiocarbon dates. The aim of studies was finding an answer to a question, if there was any significant difference in a development of western and eastern territories of Lower Oder Region and what was the cause and meaning of it. The presentation constitute a part of a larger PhD thesis concerning cultural dynamics in Lower Oder Region, Kuyavia and southwest Greater Poland between 2500-1500 BC. The thesis is carried out along with the project "Late Neolithic/Early Bronze Age developments in the south-west Baltic area (2500–1500 BC): Why did the Bruszczewo-Łęki Male type of power structures appear?".

**Barrows landscape. Comprehensive research on funeral rites from the Bronze Age on the borderland of Silesia and Greater Poland (Las Krotoszyn)**

*Mateusz Stróżyk (Poznań Archaeological Museum)*

The presentation concerns the funeral rite of Tumulus Culture (TC) community located on the border of Silesia and Great Poland. The matter relates to the period ca mid-2nd millennium BC, ie the years 1550-1300 BC. In central Europe the period is directly connected with cultural crossroads, between the end of the Early Bronze Age (protocivilisation) of the Únětice culture and the emergence of a new cultural model in the form of the so-called Lusatian Urn Field. It is a period of dynamic changes, at the same time, on the physical plane landscape / environment as well as worldview culture. The area of the Krotoszyn Forest proved to be a very good determinant of these changes. Application of a whole package of modern non-invasive procedures, to wit: spatial analyses in GIS environment of the digital elevation model (DEM) obtained during airborne laser scanning (LiDAR/ALS), magnetometric prospection, geological and paleoenvironmental analysis helped to extract the most of the informative potential of Krotoszyn Forest. The procedures provide a basis for building a model presenting the formation of the spatial layout that ensued from the activities of TC communities. Accumulated information (from single objects to the whole region) allow isolating landscape preferences that might have made Bronze Age communities choose specific settings for their cemeteries and single barrows. Achievement of mentioned analyses
thus led to creation of a model describing the principles which had possibly guided TC communities from the Silesia-Great Poland borderland during the construction of ritual sites in the landscape. In presentation will be shown the results of the project which was in the course of implementation from 2013.

Singen revisited. Gender-related Mobility Patterns and Territoriality in Early Bronze Age Central Europe
Julia Katharina Koch (CRC 1266, Kiel University)

The cemetery of Singen (Lkr. Konstanz, Baden-Württemberg, Germany) is commonly interpreted because of its rich variety of metal objects as one important site in the Early Bronze Age landscape of Central Europe and as a landmark within the development of bronze metallurgy. The material includes local and regional types as well as objects from far away like a faience bead in a girl’s grave or the so called Atlantic daggers in the burials of elder men. Also the gender-differentiated burial rites demonstrate influences from different directions. Those results were reasons enough to re-analyse the material of Singen as a case study in the BMBF-research project “life course reconstruction of mobile individuals in sedentary societies in Bronze and Iron Age Central Europe” (Leipzig University, funded 2009-11, publication in preparation). The project included an integration analysis of the material first at the individual level with the question how much foreign, regional and local marks show each grave. In comparison to the known social-archaeological and physical anthropological data and especially to the archaeometric isotope results of the project it was possible to define social groups with different (inter)cultural expressions. The discussion was focused to particular possibilities of those social groups to influence the cultural identity of the Singen community. The paper will pick up the question which relevance has had marks showing a locality or non-locality for the Early Bronze Age people in Singen. Is a territoriality remarkable in the material and burial display of different social groups?

Late Bronze Age settlements in the eastern part of the Great Hungarian Plain
Polett Kosa (Eotvos Lorand University, Institute of Archaeological Sciences)

The aim of this presentation is to introduce the settlements of the Late Bronze Age Gáva cultural complex. Previously we had only a few detail about the settlements of this period that can be charac-terized by the Gáva ceramic style. This phase of the Rei. HaA2-B1 is rather unknown regarding the settlements and the everyday life of their inhabitants, so we have to collect all information from all the excavations that we know to date to gain a full picture. How well did they exploit natural resources? What was their relationship with the water resources? What kind of settlement structure did they have and can the settlement types be classified? Is there and what kind of connection is between the set-lement types? To answer these questions, several satellite settlements will be discussed and introduced. Two “mega-size” sites (Baks, Poroszló) with extremely intensive find materials and two smaller (Biharkeresztes, Berettyőújfalu), but similarly significant and decisive settlements will be presented. By collecting their special features and find materials, it can be demonstrated that numerous interesting changes took place during this period, which transformed not only the structure and position of settlements, but the economic system and the everyday life of the people.

Settlement network in Bronze Age of southern carpathian basin
Hrvoje Kalafatić (Institute of Archaeology, Zagreb, Croatia)
Co-author: Bartul Šiljeg, Institute of Archaeology, Zagreb, Croatia

Eastern Croatia is a region situated between three major central european rivers: Dunav, Drava and Sava. It is optimal for archaeological landscape research with remote sensing techniques due to its characteristics as it is a lowland area with fertile land divided on large agricultural plots. Fertile soil provided important basis for the human occupation and large plots provide better visibility of archaeological remains. Combined usage of satellite imagery and aerial photography compared with results of systematic field survey provide completely new insight on land occupation, settlement pattern and subsistence strategy in the Bronze Age of eastern Croatia. Regular usage of UAVs significantly increased discovery of new sites. The result is identification of large network of archaeological sites attributed to Bronze Age throughout the area. Some known and excavated sites could for the first time be viewed more accurately, in their entirety and within their landscape. Change in settlement pattern through time can be documented from Early Bronze Age to Late Bronze Age. We can also observe gradual spatial dispersion of Bronze Age settlement network regarding the probable existence of central sites and settlement hierarchies.

Spatial organization and territorial control in South Sardinia (Italy) during Bronze and Iron Age
Valentina Matta (Aarhus University)
Co-authors (in order): Cabras Marco - Archaeological Museum of Nuragic Civilization (MU. NU.) – Villa Verde, Sardinia (Italy); Porcedda Federico- Ph.D. Candidate, Doctorado en Historia y Artes – Arqueología y Cultura Material, Universidad de Granada; Cicilloni Riccardo-
The Nuragic civilization developed in Sardinia (Western Mediterranean) during the Bronze Age and First Iron Age (1800-720 BC) and it is named after its stone-built towers, so-called nuraghi. The towers are distributed across the whole island (circa 8000 monuments). Landscape analysis observed that they do not spread out in the territory casually, but tend to form clusters in a varied way. Thus, Nuragic communities adapt their settlement’s system to elements of the landscape morphology and to the surrounding resources like agriculture and husbandry, mineral means, while having also a function related to the defense of the land. Therefore, considering the strategic position of the towers and their monumentality, the Nuragic communities might have considered visibility and closer access to natural resources as significant features for the position of the nuraghi. In fact, recent studies of ancient landscapes supported the idea of visibility in relation to themes of territory and influence. Therefore, is this theory applicable also to the Nuragic towers during the Bronze Age? The aim of this paper is to investigate the concept of territoriality during the Bronze Age in Sardinia, using the visual-perceptive aspects and the mobility systems across different territories as main elements, trying to investigate the relationship between settlements and landscape. The research proposes some cases of important settlement systems pertinent to the Nuragic civilization in particular, in the territories of Marmilla and Sarcidano (South-West Sardinia), interested by a great number of Nuragic sites.

Violent Build-Up: How Population Concentration in Iron Age Southern Scandinavia Resulted in Increasing Military Conflict
Timmis Maddox (Independent)

The Iron Age of southern Scandinavia (150-750 AD) is becoming increasingly recognized as a period defined by the emergence of a new regional tradition of prehistoric urbanism which both concentrated and centralized local social groups. Focal settlements such as Gudme, Uppåkra, and Sorte Muld—large sedentary settlements with clear urban characteristics—drew together a previously scattered populace through their social and administrative centrality, creating/maintaining collective identities which further drove the overall transition towards concentration. Yet as this trend towards agglomeration took place, southern Scandinavia also experienced a rise in military conflict. As shown by the various weapon deposits and land/sea fortifications found throughout the region, Iron Age southern Scandinavia began to experience conflict on a regional scale, often involving hierarchically-organized armies numbering in the thousands. Philosopher David Campbell (1998) argues that once a people ties its concept of political identity and security to a single place, it is inevitable that everyone outside of that place becomes an enemy and a potential threat. Drawing together archaeological evidence of military conflict—including the southern Scandinavian weapon deposits and land/sea fortifications—and interpretation of sites such as Gudme and Uppåkra, this paper analyses the socio-cultural effects of population agglomeration during the Iron Age. In doing so, it argues that as Iron Age southern Scandinavian societies began to concentrate, military conflict increased throughout the region as a new definition of territoriality developed—particularly one associated with the collective identities linked to the focal settlements and the socio-cultural entities they came to embody.

 Layers of landscape: Anthropological and ethnoarchaeological perspectives

Wednesday March 13th until Friday March 15th, Room 209
Session organizers: M. Wunderlich, H. Piezonka

WED 15:30 POSTER SESSION Red for the dead: ethnobotanical perspective on Cornelian cherries and their meaning in Mesolithic funerals at Vlasac, SE Europe
Dragana Filipovic (Institute for Balkan Studies, Belgrade, Serbia)

THU 15:30 Ethnoarchaeology and archaeological argumentation - Why analogies still matter
Keynote lecture: Sabine Reinhold (Eurasia-Dept. DAI, Berlin)
16:00 Landscapes of reindeer herding: land-use dynamics and human-reindeer relations in northern Sápmi c. 700–1800 AD
Oula Seitsonen (University of Oulu)
16:20 Sámi place-names and prehistoric hunter-gatherer landscape knowledge in Arctic Europe. Linking ethnographic and archaeological data
Marianne Skandfer (Tromsø University Museum, UiT - The Arctic University of Norway)
16:40 The Taz Selkup: Ethnoarchaeological insights on migration, ethnicity and material culture of hunter-fishermereindeer herders in the Siberian taiga
Henny Piezonka (Institute for Prehistoric and Protohistoric Archaeology, Kiel University)

17:00 Discussion

FRI
08:30 From hunting and fishing to herding. Strategies of adaptation among forest-steppe populations in Western Siberia in the 2nd millennium BC
Sabine Reinhold (Eurasia-Department, German Archaeological Institute)

08:50 Molecular footprints of animal husbandry in two ecological zones in Eastern Mongolia: implications for archaeological research
Natalia Eguez (Kiel University)

09:10 Abandoned cities in the steppe. Ethnoarchaeological research at early modern religious and military centres in nomadic Mongolia
Jonathan Ethier (Institute for Prehistoric and Protohistoric Archaeology, Kiel University)

09:30 Beyond counting sheep: and interdisciplinary review of the Medieval British pastoral landscape
Roxanne Guildford (University of Edinburgh)

09:50 Discussion

10:30 Catching the Past – Fishing techniques from the Lower Danube Region in the 5th mill. BC and today
Mihaela Savu (Graduate School Human Development in Landscapes)

10:50 Fortifications and topography – ethnographical examples for the usage of landscape as an element of defensive systems
Andy Reymann (Goethe-University Frankfurt; LOEWE-Project “Prehistoric Conflict research.”)

11:10 Landscapes of communal frames, economic inequality and social signaling in Nagaland, North-East India
Maria Wunderlich (Institute of Pre- and Protohistoric Archaeology, Kiel University)

11:30 Scales of Documentation – Remote Sensing and Structure from Motion (SFM) Documentation of Megalithic Monuments in Eastern India
Knut Rassmann (DAI)

11:50 Discussion

13:30 Ridge and Furrow Cultivation – New research approaches with new perceptions
Theresa Langewitz (Martin Luther University Halle-Wittenberg)

13:50 The Skulls of the Isle of the Dead Musira (Tanzania). A historical-anthropological research on funerary customs, burial rites and family associations
Barbara Teßmann (Museum für Vor- und Frühgeschichte Berlin) and Marius Kowalak (Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte)

14:10 Discussion
ABSTRACTS

Layers of landscape: Anthropological and ethnoarchaeological perspectives

Keynote speaker: S. Reinhold (Eurasia-Department, German Archaeological Institute)
Session organizers: M. Wunderlich*, H. Piezonka
*corresponding, m.wunderlich@tu-berlin.de

Currently, ethnoarchaeology is regaining importance in archaeological understanding and interpretation. One field of interest concerns the roles, meanings, and agency of landscape and its material ‘footprints’. Comparative approaches at the interface of anthropological and archaeological research, and especially the integration of expertise of contemporary communities can lead to a deeper understanding of the entanglement of people with different physical and conceptual layers of landscapes. This concerns for example, natural features and their cosmological dimensions, possible roles of landscape and resources in the reproduction of social structures, its entanglement with society and culture as an agent, and the archaeological visibility of these various aspects.

In our session we will discuss various case studies from different parts of the world that cover a wide socio-economic spectrum. We are interested in looking at hunter-gatherer, herder, and farming, and also industrial societies in different environmental settings from the subpolar regions to the sub tropic areas. Particularly welcome are contributions on new methodological approaches and on theoretical aspects. Modern documentation methods such as spatial statistics, 3D documentation, DEM etc. have recently opened up entirely new possibilities for bridging quantitative spatial data with qualitative information from within the societies. Our aim is to explore the potential and limitations of such integrated archaeological-cultural anthropological research and see how this can contribute to a broader and more differentiated understanding of enculturated landscapes.

POSTER SESSION: Red for the dead: ethnobotanical perspective on Cornelian cherries and their meaning in Mesolithic funerals at Vlasac, SE Europe

Dragana Dabić Zagorac, Innovation Center, Faculty of Chemistry Ltd, University of Belgrade, Serbia

Cornelian cherry (Cornus mas L.) is a small deciduous tree or a bush that grows spontaneously in and near oak forests in central and southern Europe and southwestern Asia, and can live up to 200 years. It is known mostly for its edible fruit – orange or red drupes the size of olives and with sharp astringent taste. It is, however, also known for its tough and durable wood, which was highly valued in the Greek and Roman world and is described in ancient texts as an essential material from which weaponry and tools were made. Cornelian cherries are nowadays consumed fresh, but are more commonly turned into jams, juices, alcoholic drinks and similar products. In traditional medicine, the bark and leaves are also used. It does not surprise then that, in some communities, the tree has a special place in life and plays an important role in celebrations and rituals. The history of use of Cornelian cherry fruit in Europe goes back more than eight millennia, at least to the time of earliest farming settlements in the Balkans. Cornelian cherries were perhaps collected as food, but myriad other purposes are possible, as suggested by their role nowadays and in recent history. In the Mesolithic cremation graves discovered at the site of Vlasac in eastern Serbia, in the Danube Gorges region, charred fruit stones of Cornelian cherry were encountered, in one case in significant number. An idea has been put forward, that Cornelian cherries may have represented an element of the funerary ritual and that their red colour may have given them a symbolic role, linked with life/death. We explore this assumption by experimentally testing the potential of Cornelian cherry fruit and stone to become preserved in cremation fires. We also look into ethno-botanical records to try and grasp the role that this plant could have played in the Mesolithic burial ritual and beyond.

Ethnoarchaeology and archaeological argumentation - Why analogies still matter

Keynote lecture: Sabine Reinhold (Eurasia-Dept. DAI, Berlin)

How did prehistoric people approach the natural environment in which they lived? Today, we would call it ‘landscape’ and imply therein a culturally-shaped scenery which has, up until a certain point, accumulated layers of social meaning over centuries and millennia. A land deliberately or unconsciously shaped by the everyday practice of its inhabitants with artificial additions such as buildings, villages or monuments, with an infrastructure created by humans and with scars manifested as intrusions into the vegetation and soil or erosion in areas following intensive usage. Perhaps they would have called it a ‘taskscape’, as this environment was the land from which they drew their livelihood. It intertwined them in a wide-ranging spectrum of activities related to economic, social, political or ritual responsibilities. Or perhaps they would instead have called it a ‘lifescape’, the land with which they are entangled and which they occupy both physically as well as cosmologically.

Landsapes – per the definition of the British social anthropologist Tim Ingold, namely,
“an array of related features” – are present in the structure of our archaeological sources and their embeddedness in geographical settings. To analyse it, we can utilise mapping, correlations to the environmental background and chronological differentiation of our sources. But when it comes to “taskscapes” – or, “an array of related activities” – we have to reconstruct them using the incomplete remains of these once-performed activities and their relation to space. Experimental and ethno-archaeological approaches have proven to be eye-opening in many ways for the understanding of how specific activities could have been performed and what remains might result therefrom. A recent ethno-archaeological study by Peter Jordan on the landscape use and conception of Siberian hunter-gatherers demonstrated that the knowledge of native populations is an additional, indispensable source for the understanding how the activities were structured. Hunter-gatherers as well as pastoralists’ strategies to inhabit land are very different from our own everyday experience, settled in a (post-) agricultural surrounding. They require different viewpoints and different layers of information – they need anthropological and ethno-archaeological perspectives in order to understand them as former ‘lifescapes’.

Landscapes of reindeer herding: land-use dynamics and human-reindeer relations in northern Sápmi c. 700–1800 AD
Oula Seitsonen (University of Oulu)
Domestication of reindeer commenced amongst the Sámi of northern Fennoscandia from 8th century AD, and was accompanied by major cultural changes. This presentation focuses on the diachronic changes in the land-use, interand intra-site settlement patterns and human-environmental relations of Fjell Sámi in northern Sápmi, their homeland stretching across the northern shore of Europe. Ongoing research takes a host of GIS analyses as its starting point, focusing especially on two pivotal periods: 1) the initial domestication of reindeer within a hunter-fisher-gatherer society (c. 700–1050 AD); and 2) the shift to nomadic large-scale reindeer husbandry (c1500–1600/1800 AD). The initial shift from hunting-gathering and fishing based livelihoods to small-scale reindeer herding during the Middle Iron Age changed people’s everyday lifeworlds, environmental perception and human-reindeer relations. This is mirrored in the archaeologically for example by changing campsite organization and structures, most importantly by the introduction of so-called rectangular hearths in the archaeological record. Both the intraand inter site spatiality of the hearth sites as well as their placing in the landscape differs from the earlier hunter-gatherer sites. Also, the shift to large-scale nomadic pastoralism from Middle Ages is reflected in the archaeological record by similar changes in landuse and camp-site organisation. Nomadic pastoralist sites appear at different locations and with differing features than the previous rectangular hearth sites, which appear to have been related to the small-scale use of domesticated reindeer. Nomadic pastoralists followed their herds through the landscape year around, “...always coming and going, like migratory birds”, as Sámi elder Gáijohaš has famously stated. The pastoralist landscapes should not be approached as purely anthropogenic constructs. Instead, the agency of animals and things should be acknowledged in a pluralistic perspective. The changes in the herding strategies as well as land-use mirror also important diachronic changes in the human-reindeer relations and encounters.

Sámi place-names and prehistoric hunter-gatherer landscape knowledge in Arctic Europe. Linking ethnographic and archaeological data
Marianne Skandfer (Tromsø University Museum, UiT - The Arctic University of Norway)
Sámi place names and landscape terminology relates to reindeer herding and a spectrum of hunting, fishing and gathering practices. Key elements inherent in the Arctic Norway landscape are critical points along travelling or migration routes, distinct landscape shapes to navigate by and places where different resources can be found. Place names together with narratives refer directly or indirectly to how and which animals move through a particular landscape at a particular time of year, weather conditions, or seasonal-specific good places to dwell. They help people navigate through an unpredictable and highly varied environment. Large rock carving sites established around or shortly after 5000 BC in northernmost Europe were placed at transition points between landscape types, typically at coast-inland transitions. It has been suggested that the rock surfaces, into which figures are carved, are representations of real landscapes, with rivers, lakes, sea and mountains. In that case, a careful selection of key animals and key topographical elements can be suggested to be represented in the rock carvings. The paper explores similarities and differences in how landscape is perceived, as expressed in Sámi place-names and landscape terminology, and Stone Age material. It is argued that ethnographic information can have broad significance for understanding resource management and decision-making strategies in prehistoric northern hunter-gatherer communities, in their meetings with landscapes and animals.

The Taz Selkup: Ethnoarchaeological insights on migration, ethnicity and material culture of hunter-fisher-reindeer herders in the Siberian taiga
Henny Piezonka (Institute of Pre- and Protohistoric Archaeology, Kiel University)
Co-authors: Vladimir Adaev (Tyumen, Russia), Olga Poshekhhonova (Tyumen, Russia)
Ethnoarchaeological approaches can greatly contribute to our understanding and
interpretation of the archaeological record left by Stone Age hunter-fisher societies of Northern Eurasia by integrating analogies, questions of archaeological visibility, and indigenous knowledge. The northern parts of the Western Siberian taiga have until now remained poorly studied in archaeological and ethnoarchaeological terms. This is mainly due to the difficult accessibility of this remote region for field research. Since 2013, various Early Modern sites (settlements and burial grounds) as well as contemporary settlement structures associated with the Selkup in the taiga between Ob' and Yenisei have been newly discovered and investigated. In the course of the 17th and 18th centuries, Selkup groups have migrated north into this region from Tomsk province, and in the new territories at the the River Taz have partly preserved their nomadic ways as foragers up until today. In the course of the relocation, the material and spiritual culture was transformed under the influence of the neighboring ethnic groups. The Selkup newcomers met local communities of Entsy, an ethnic group related to the Nenets, and in a long series of small-scale fighting and also larger battles the Selkup gradually evicted them from the territory. This history is not only vividly remembered among the Taz Selkup communities even today but has also been inscribed into the landscape by toponyms and stories. A new feature adopted in the north is small scale reindeer husbandry, supplementing economic approaches and in turn affecting seasonal cycles, mobility within the landscape and associated settlement systems and life ways. Thus, the sub-recent, historically documented Selkup migration is of immense potential both from an anthropological and archaeological point of view because it allows us to trace the causes and mechanisms of adaptation to the new environments and its effects on material and immaterial culture, language, ethnic self-perception and inter-group relations against the background data from the southern original homelands. Ethnoarchaeological fieldwork of a Russian-German team which started in 2016 on the upper Taz is focusing on temporary settlements of this region and their appropriation of the landscape. We can also test the material footprint of these processes as well as its restrictions, indicating just how much caution is needed when there is only the archaeological record left for the reconstruction of past conditions, relations and realities.

From hunting and fishing to herding. Strategies of adaptation among forest-steppe populations in Western Siberia in the 2nd millennium BC

Sabine Reinhold (Eurasia-Department, German Archaeological Institute)
Co-author: Zhanna Marchenko (Institute of Archaeology and Ethnography Siberian Branch of the Russian Academy of Sciences (IAET SB RAS)

One of the most important adaptations of societies at the northern frontier of the Eurasian steppe belt was the transition from a hunter-gatherer to a pastoral economy during the Bronze Age. There are several hypotheses regarding the timeframe and the trajectories of this development: but if, when, why, and how this transition happened is still largely unknown. Archaeological approaches have so far argued from the presence of domesticated animals in the find assemblages from the 3rd millennium BC, but the adaptation of a food-producing way of economy based on herded animals addresses a much wider spectrum of ideological and cognitive topics than purely economic ones. How did human practice change with the challenge of an entirely new spectrum of activities? How spatial patterns of activity and food production? How was the shift from hunting to herding mastered in terms of contrastive worldviews? Modern societies with respective economic practices reveal strong differences in the perception of animals and humans as part of contrarily integrated cosmological systems. Initiated by Tim Ingold’s article ‘From trust to domination’ 2002, differences in perception but likewise in everyday practice is discussed. The ethnography of Siberia offers a broad spectrum of comparative studies in the use and conceptualisation of landscape, exploration areas, as well as habitation and burial places. We will draw from this data and the debate on changing cognitive systems during the transition from foraging to producing economies and try to evaluate data from Western Siberian Bronze Age cemeteries in the Baraba steppe where such an economic shift is discussed, most likely associated with an advance of new populations into the forest-steppe forest-zone. Did the everyday practice of the local and new communities indeed changed dramati- cally? How was cultural and economic interaction operated? Were there consequences in activity pattern, in the shaping of foraging or pastoral landscapes? And, do we find indications for changes in the perception of animal-human interrelations between foraging and pastoral communities, as e.g. postulated by Ingold in the prehistoric data from Siberia?

Molecular footprints of animal husbandry in two ecological zones in Eastern Mongolia: implications for archaeological research

Natalia Eguez (Kiel University)
Co-author: Ms. Cheryl Makarewicz (Kiel University)

The seasonal usage and relative intensity of occupation of pastoralist camps, are an important temporal variable in mobile societies, but difficult to directly detect in the archaeological record. Molecular proxies concealed in soil lipids hold great potential
for palaeoenvironmental reconstruction when applied to organic-rich archaeological pastoral contexts. The analysis of plant n-alkanes extracted from livestock dung provides insights into animal diet composition and, by taking advantage of environmental seasonality that impacts floral growth, fodder management. To this end, we conducted compound-specific carbon stable isotope analysis of plant n-alkanes on caprine dung deposits deposited in pastoral nomadic winter campsites located in two contrasting phytogeographic zones, the forest-steppe and desert-steppe in Eastern Mongolia. Here, we conduct carbon isotope analysis (δ13C) of plant n-alkanes of dung deposits associated with pastoral nomadic winter campsites in Mongolia in order to explore the origin of plant organic matter ingested by livestock and evaluate potential biomolecular signatures associated with the intensity and duration of dung deposition. Preliminary results suggest that intensity of stalling, and the composition of plants ingested by livestock are identifiable in dung samples recovered from corrals with this method. In particular, δ13C values in plant n-alkanes in dung deposits are unusually low compared to carbon isotope values of nalkanes derived from soil control samples recovered from landscapes with minimal, if any, anthropic activity. These results highlight the importance of ethnoarchaeological studies in identifying biomarkers at the molecular scale that convey information on pastoralist animal exploitation practices.

Abandoned cities in the steppe. Ethnoarchaeological research at early modern religious and military centres in nomadic Mongolia

Jonathan Ethier (Institute of Pre- and Protohistoric Archaeology, Kiel University)
Co-authors: Birte Ahrens, Martin Oczipka, Henny Piezonka, Christian Ressel, and Sampildo-vdov Chuluun

Towns and cities have been an integral part of the Mongolian nomadic society for more than a millennium, and abandoned urban sites from various periods dot the land, inscribing memories of lost empires and long-gone alliances into the cultural landscape. The relation between sedentary urban and mobile herder lifeways has constituted a key cultural, economic and political factor in one of the major pastro-ralist formations in Eurasia. In the 21st century, it is gaining increasing importance in the negotiation of the conception as well as the future of Mongol national identity. Instances of urbanization in Mongolia have a long-standing and specific history, starting with the mighty capitals of the Medieval steppe kingdoms, continuing with colonial institutions in the Early Modern period and the establishment of administrative and industrial centres during the socialist period, and culminating today with an unprecedented rural exodus into the modern capital of Ulaanbaatar and a few other major cities. The era in which most modern cities on Mongolian soil are rooted is the period of Manchu rule during the Qing dynasty in the 17th to early 20th centuries. It is this period which saw the establishment of Buddhist monasteries as centres of trade, education and permanent settlement, and the installation of colonial military posts. Subsequent political developments connected to the end of the Manchu rule and the rise of socialist policies in the early 20th century led to the abandonment or, in the case of monastic sites, to forced destruction of many of these urban focal points, leaving the places inscribed in the topography as ruins and evermore diminishing structures. Nevertheless, local oral traditions, place names and conceptions of regional enculturated landscapes have partly preserved the memory of those lost cities and in cases may refer to them in the narratives on local historical roots and the backward projection of identities into a pre-industrial past. Since 2017, a Mongolian-German pilot project combines archaeological, geo-information, historical and ethnographic methods to trace the entanglement of social, political and cosmological dimensions of abandoned Manchu period urban settlements. In the research area located in central Mongolia, selected monastic (e.g. Old Shankh monastery) and military settlements (in the Khangai Mountains) are investigated to gain insights into two contrasting models of Manchu period urbanism and their changing perception over time. Surface surveys, high-resolution aerial photography and digital elevation models conducted in 2018 enable the detailed assessment layout and architecture of the sites themselves, of previously unknown structures in the vicinity and of the surrounding natural landscape. In this paper, we will present the first promising results of this ongoing investigation and outline our expectation for future research which is planned to include small-scale excavations, the documentation of local knowledge and narratives as well as archive work on written sources. We will show the value and potential of archaeological and ethnoarchaeological studies of Mongolia under the Qing regime and indicate how this research project will contribute in reopening this influential past at the heart of the Mongolian identity and lifeways.

Beyond counting sheep: and interdisciplinary review of the Medieval British pastoral landscape

Roxanne Guildford (University of Edinburgh)

Zooarchaeological research analyses faunal remains to explore the relationship between animal husbandry and cultural and environmental change in the past. To further this research agenda, quantitative methods in archaeology must evolve toward better interpretations of large, aggregated data sets that can illuminate patterns across human landscapes. The application of computational archaeology to zooarchaeology opens scope for the study of both regional trends and inter-site variability for increasingly complex data sets integrated with environmental, geographic, or temporal
variables. The advent of open-source software and open data in archaeological research further allow for dissemination of large bodies of information, interdisciplinary meta-analysis, and accessible reproduction of results. This project is part of an ongoing Ph.D. thesis that examines the intensification of sheep husbandry in relation to wool production during the Medieval period in Britain, using computational and zooarchaeological methods to refine previous interpretations of economic changes in farming. Datasets from published assemblages are presented in case studies that move beyond descriptive approaches and visualization based on derived metrics, towards interpretations that explore statistical variation in faunal assemblages associated with reorganization of the pastoral landscape. Advancement in zooarchaeological methodology that considers synthesizing multidisciplinary data and technology will assist in future collaboration within research teams, create new perspectives on site variability, and enhance our current understanding of past socio-ecological relationships.

Catching the Past - Fishing techniques from the Lower Danube Region in the 5th mill. BC and today

Mihaela Savu (Graduate School Human Development in Landscapes)
Co-author: Michael Müller (Freie Universität Berlin)

The Danube Delta represents the largest European wetland, as well as one of its most diverse deltas, characterized by a rich biotope, which houses 30 types of ecosystems. Another significant feature is the particular population dynamics, represented by at least 13 different ethnic groups. Given the abundance of water bodies and various fauna species, among traditional activities, fishing constitutes one of the most long-lasting ones, alongside sheep and cattle breeding, beekeeping or the harvesting of medicinal plants. To this day, only few places are suitable for practising agriculture which are barely defended from periodical floodings. With all this in mind, we conducted a short-term ethnographic survey in two fishing villages located in the Danube Delta and in one town from the Lower Danube region in Bulgaria. Sfântu Gheorghe, the first village surveyed, is placed at the mouth of the Danube into the Black Sea. There, in the 18th century AD, the Cossacks or “haholi”, who are of ethnic Ukrainian origin, settled while fleeing from the Russians. The second village, Milla 23, is located on one of the navigation channels of the Danube. Here settled a community of Russian Lipovans (Starovers), which fled from Russia in the mid 17th century. While from the 15th century the Cossacks were already seen as a group practising hunting, fishing, beekeeping, etc., the Lipovans’ circumstances of settling imposed on them a similar trajectory, determining them to direct their occupation mainly towards fishing. These groups did not only bring their traditional clothes, architectural styles or celebrations with them, but also particular fishing techniques and instruments. This way, the Lipovans rapidly became famous for building narrow black fishing boats, or “lotcas”, for fast navigation among reed. In 1916, Grigore Antipa, a Romanian biologist, collected and illustrated fishing utensils used for capturing different species of fish in Romania. Most of the techniques described by him in his book are only focused on the targeted species and the fishing medium, and less on the cultural aspects. Hence, the third location selected for surveying was chosen for comparison grounds. Through the collected information, we try to understand the practice of fishing from prehistoric times, considering the few known categories of possible instruments used at the time, the landscapes dynamics and fauna availability, the fish specimens identified in the zooarchaeological record, as well as the poor preservation of organic material, and furthermore, the lack of navigation instruments or vegetal fibres. Although the modern communities studied by us have certainly not much to do with those from a few millennia back, we wanted to observe which techniques are used to target certain fish species in the Danube nowadays and to see if any of these techniques are comparable to the ones we reconstructed for the 6th and 5th millennia BC. We were also interested in examining how much, if at all, was transmitted in matters of tools and methods from one ethnic group to the next and also what impact the industrialization during Communism and after had on the communities, especially regarding the practice of fishing.

Fortifications and topography – ethnographical examples for the usage of landscape as an element of defensive systems

Andy Reymann (Goethe-University Frankfurt; LOEWE-Project “Prehistoric Conflict research.”)

In the past decade, the study ofprehistoric forms of warfare has reached a new climax. Overcoming the old way of interpreting prehistory as a “pacified past”, new research has been done on weapon technology, human remains with signs of violence, battle fields, iconography showing early warriors, and also on fortified places, which could have been places of greater conflicts. But many times, archaeologists in Europe were focusing especially on those remains of prehistoric fortifications, which were fitting into an eurocentristic model of being “defendable”, meaning those kinds of walls, ramparts and ditches, which can be dated into Bronze and Iron Age – the times, it is said, when societies became more complex and therefore “invented” real warfare. Other types of fortifications were most often ignored. Not only, because they are hard to trace in the archaeological record, but also because the corresponding societies were not considered to be capable of conducting real and elaborated forms of warfare. But recent archaeological, ethnographical and ethno-archaeological investigations show quite the opposite – warfare was conducted long before societies evolved to states and fortifications were erected on a usual and very effective base even among
non-sedentary and highly mobile groups. The projected talk will focus especially on some often neglected and ignored types of fortifications, like the usage of a defensive landscape for settlements, the inclusion of plants, hedges and fences into defensive considerations and several other defensive element, erected defend a group in the case of an suspected upcoming conflict. Ethnographical sources and case studies from different parts of the world will be shown to give an impression about those quite wide variability of defensive features, which tell us, that it doesn’t need a “complex society”, to build complex defensive systems.

Landscapes of communal frames, economic inequality and social signaling in Nagaland, North-East India

Maria Wunderlich (Institute of Pre- and Protohistoric Archaeology, Kiel University)
Co-Author: Ditamülu Vasa (Nagaland University)

Despite being only marginally known in European archaeology, North-East India offers a rich environment of diverse case studies, which can be classified both as archaeological, as well as ethnoarchaeological and offers insights into the production of social landscapes. Within the naturally and socially variable landscape of North-East India, Nagaland stands out as an example of recent megalith building activities. The erection of standing stones and megalithic monuments stopped around 60 years ago but left impressive markers in the hilly landscape of Nagaland.

Megalith building in the southern part of Nagaland can be characterized as a framework in which partly contradicting actions of social reproduction were performed. Embedded in the construction of megalithic monuments is a series of feasting activities that can involve high investments of personal property. Therefore economic inequality and competitive behavior of different actors are involved in strategies to cope with the investments required for megalith building. Those circumstances are met by and partly fostered communal strategies, cooperation and solidarity among individuals and groups.

During the course of ethnoarchaeological fieldwork in the southern part of Nagaland in 2016, it was possible to document the complex and meaningful spheres of habitation, interaction and economic activities. Within these spheres, or layers of landscape, megalithic monuments can be seen as an important conjunctive element, bridging the gap between the communal frame of habitation and the economic activity zones. This organization of landscape integrates and connects the economic zones, as foundation of economic inequalities, into a social frame. Therefore, Nagaland offers a rich example of the meaningful entanglements of spheres of social reproduction and conditions within the landscape of daily life.

Scales of Documentation – Remote Sensing and Structure from Motion (SFM) Documentation of Megalithic Monuments in Eastern India

Knut Rassmann (DAI)
Co-authors: Johannes Kalmbach, Tiatoshi Jamir

The wealth of megalithic monuments in Eastern India is widely known and presented in a great number of publications. The long research tradition, however, focused on cultural aspects like feasting and social relations and much less on the monuments themselves. Consequently, a systematic recording of the monuments is still a desideratum. Results of the first systematic fieldwork in southern Nagaland were published in a study by M. Wunderlich in 2018. The study is based on the recording of size via GPS coordinates of several hundreds of monuments in the periphery of selected villages. Additionally, photographs were taken of each monument. In some cases groups of monuments were documented by SFM models generated from these pictures by conventional cameras. These SFM models delivered valuable results regarding the size of objects, their preservation, and microtopography, however, for the recording of larger groups of standing stones the application of conventional cameras is insufficient. In order to optimize the documentation workflow, a drone was introduced in a second field campaign in 2018. In addition to the Nagaland specimen, exceptional monument groups in Manipur and Megalaya were recorded. The combination of drone and conventional camera photography enabled us to document the monuments on different scales, i.e. from single monuments to groups of monuments and finally within the context of the adjacent villages. The SFM software together with the GPS coordinates of the photos give us the precise location and measurements of the monuments. The combination of SFM and high resolution satellite images facilitates embedding the data into the surrounding landscape on a broader scale and is further helpful for the correction of the coordinates.

The fieldwork in 2018 was used to introduce the SFM software and the application of drones to our colleagues at the Kohima University. Preliminary results confirm the high potential of drone based SFM models for the documentation of megalithic monuments. A systematic use of this workflow is tailor made for a systematic recording of the megalithic landscapes in Eastern India.

Ridge and Furrow Cultivation – New research approaches with new perceptions

Theresa Longewitz (Martin Luther University Halle-Wittenberg)
Co-authors: Mechthild Klamm (State Office for Management and Archaeology Saxony-Anhalt) Katja Wiedner (Martin Luther University Halle-Wittenberg)
In human history, landscape transformation through agricultural activities is tremendous all over the world. An example of man-made landscape modifications are ridges and furrows widely distributed in Northern and Western Europe. These agricultural remains are characterized by ridges up to 1 m high and up to 17 m wide and lengths often more than 400 m. It is commonly assumed that ridge and furrow cultivation occurred through the use of sod-turning ploughs in medieval times. Soil was accumulated towards the center by moving circular during single-sided ploughing which led to a gradually development of ridges and furrows. However, there are critical voices suggesting to reconsider the i) development; ii) benefit; iii) cultivation technique and iv) age of ridge and furrows, at least at some locations. Our interdisciplinary project, funded by the German Research Foundation (DFG), aims to clarify the mentioned points in the Altmark region and the foothills of the Harz Mountains in Northern and Central Germany, where wide forest areas are still covered by ridge and furrows. Beside the evaluation of LiDAR data and historical written sources, field descriptions of ridge and furrows were performed and soil samples were taken for subsequent laboratory soil analysis. In addition to standard soil analyses, state-of-the-art methods including stable isotope and molecular markers such as $\delta^{13}C$, $\delta^{15}N$, black carbon, $\Delta^5$-sterols and bile acids will be conducted. Additionally, we used various dating methods such as OSL, radiocarbon dating and diagnostic artifacts (e.g. ceramics). OSL as well as radiocarbon dating revealed that at least some ridge and furrows might be created much earlier than commonly known – if an earlier soil cultivation independent from ridge and furrow can be excluded. Furthermore, some ridge and furrow soil profiles show a well-preserved fossil topsoil (fAh) in +/- 40-50 cm soil depth. It can therefore be assumed, that additional other techniques than ploughing might be used for ridge and furrow formation. Our first laboratory investigations showed that nutrient stocks (P, N) of ridge and furrows differ within the same but also between the two study regions. Especially the differences within the same region with comparable soil texture and vegetation cover, might indicate different manuring practices. We will clarify this question by using the mentioned molecular markers in order to identify ancient input materials such as animal and human excrements. The first results of our study strongly suggest that ancient ridge and furrows are highly diverse and need to be individually considered depending from their time of origin, (historical) natural landscape conditions but also regarding the cultural background and available resources at the time of formation.

Barbara Teßmann (Museum für Vor- und Frühgeschichte Berlin) and Marius Kowalak (Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte)

In 2011, the museum for pre- and protohistory Berlin (MVF) took over several anthropological collections from the Charité, including the so-called ‘S-collection’ of Felix von Luschans. Together with the Rudolf Virchow Skull Collection, the MVF’s collection comprises some 11,000 skulls and several hundred skeletons, making it one of the largest skull collections in the world. By taking over these collections, the MVF has set itself a difficult task, as some of the collections are related to the colonial history of the German Empire. The interdisciplinary project on the recontextualisation of human remains from Africa with a colonial acquisition background is a pilot project investigating the provenance of 1196 skulls from the former German East African collections of Felix von Luschans, Rudolf Virchows and other parts of the collection. With the help of anthropological research methods and historical source research in cooperation with scholars from the societies of origin, the mutual interdependencies of the acquisition circumstances are to be clarified. Rising from Lake Victoria in northwestern Tanzania, the island of Musira shapes the surrounding landscape of the city of Bukoba. Today known as a fishing and former prison island, it served in pre-colonial times as a burial place for parts of the local population, primarily high-ranking male Haya. On the basis of the historical research and the anthropological research results, the change of use of the island and the living conditions of the indigenous population will be examined.

**The Skulls of the Isle of the Dead Musira (Tanzania). A historical-anthropological research on funerary customs, burial rites and family associations**