

# 20TH ANNUAL MEETING OF THE EUROPEAN ASSOCIATION OF ARCHAEOLOGISTS

## ABSTRACTS

10-14 September 2014  
Istanbul | Turkey



# **20TH ANNUAL MEETING OF THE EUROPEAN ASSOCIATION OF ARCHAEOLOGISTS**

In Memoriam Sevgi Gönül

## **Abstracts of the Oral and Poster Presentations**

**10-14 September 2014  
Istanbul | Turkey**

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# Welcome Messages

Mehmet ÖZDOĞAN and Turgut SANER  
*Message of the Executive Committee*

Abdullah KOCAPINAR  
General Director of Cultural Assets and Museums  
*Salutatory Address*

Friedrich LÜTH  
*EAA President's Address*

Mehmet KARACA  
Rector of ITU  
*Salutatory Address*

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## MESSAGE OF THE EXECUTIVE COMMITTEE

Annual meetings of the European Association of Archaeologists have always been events of special importance; the 20<sup>th</sup> Meeting to be held in Istanbul has surpassed all expectations bringing together 2400 scholars from 74 countries. As the organisers, we are aware of the fact that historicity of Istanbul, not only as the capital city of three empires, but as a supra-regional reference point since early prehistory has been the leading motive in attracting a record breaking attendance. Istanbul is located where the narrow neck of the maritime route connecting Black Sea-Pontic Basin- with the Mediterranean crosses with the land bridge between Asia and Europe – two major trajectories in transmitting people, cultures, commodities and technologies between distant geographic entities. It is for this reason that “*Connecting Seas – Across the Borders*” has been taken as the main theme of the Istanbul 2014 EAA Meeting.

Results of the rescue excavations carried out during the last decade by the Istanbul Archaeological Museums within the framework of the “Marmaray-Metro” infrastructure project connecting Asian and European sides of the city have been an enchantment enriching the already existing archaeological wealth of the town, at the same time necessitating a new, multifarious approach in reconciling cultural assets with the requirements of the time. Accordingly, “*Managing Archaeological Heritage: Past and Present*” has been decided on as the second main theme of the Meeting.

We are going through times of change, globalisation and technological innovations with a growing concern on our habitat, giving an impetus to archaeology as a science not only in documenting and in interpreting the data, but more on opening up new research dimensions in the quest to understand the past. Thus, “*Ancient Technologies in Social Context*” and “*Environment and Subsistence: Geosphere, Ecosphere and Human Interaction*” have been selected as the other main themes of the Meeting. In a world of social and political transitions, probably no other theme of the Istanbul Meeting but the one titled “*Times of Change: Collapse and Transformative Impulses*” adds a comprehensive retrospective to this crucial issue of humanity. In quest for a dialogue between factual, methodological and theoretical approaches for retrieving, analysing and interpreting archaeological evidence, the final theme “*Retrieving and Interpreting the Archaeological Record*” is an enrichment to the Meeting by making it possible to present case studies on recent discoveries.

One of the most important assets of the Istanbul meeting is surely the integration of MERC, the Medieval Europe Research Congress, which contributes a unique insight to the immense dynamism of the Middle Ages in an extended geography.

For the first time in the history of the EAA meetings, we have so many participating scholars from Turkish universities. This provides further mutual awareness of scholarly interests, opening the European research scope towards “the edge of Europe” and vice versa.

Istanbul Technical University proudly mounts the meeting with its long tradition of research on art and architectural history, restoration, cultural heritage management and environmental sciences, considering archaeology, which had particularly been



promoted after the foundation of the Turkish Republic, as an academic field within its domain. The Istanbul 2014 EAA Meeting will take place in the two historic buildings of the Istanbul Technical University, “Taşkışla” (the Faculty of Architecture) and “Gümüşsuyu” (the Faculty of Mechanical Engineering), both located in the centre of Istanbul.

The Executive Committee is grateful to the members of the Scientific Board for the help they have provided in drawing the scientific framework of the meeting. The EAA Istanbul Meeting would not have been possible without the help and support of numerous organisations, institutes and colleagues, and the generous contributions of our sponsors. Last but not the least we must acknowledge the patience and understanding of the Congress participants.

**Prof. Dr. Mehmet ÖZDOĞAN and Prof. Dr. Turgut SANER**

Co-Presidents

Istanbul 2014 EAA 20<sup>th</sup> Annual Meeting

## SALUTATORY ADDRESS

I would like to state, I am honored and pleased that the 20th Annual Congress of European Association of Archaeologists, an association that runs activities on any subject concerning archaeology and cultural heritage, founded in order to provide the communication, scientific partnership, sharing ideas and development among the European archaeologists, is being held in our country.

For almost two hundred years, many local and international scientists are working with diligence and dedication on shedding light on history in Anatolia that may perhaps be referred as an open air museum with the traces of the civilizations it was home to with its unique geographical and geopolitical location throughout history.

Travelers' interest in the historical artifacts in this unique geography of Anatolia starting from 16th century and the scientific studies beginning in 19th century had been turned into multinational, interdisciplinary, institutionalized excavation and researches now, in 21st century. This is a source of pride for all of us.

This integrated, multinational institutionalization naturally requires reciprocity in a series of cooperations covering field works, laboratory studies, temporary exhibitions, museology, returning of ancient artifacts that are removed illegally, exchange of experts and experiences and many other common activities between two or more parties.

Republic of Turkey, Ministry of Culture and Tourism that accepts level of development of museum and museology as one of the criteria of modernity in a country, counts transferring the cultural heritage of this land into the future with the consciousness of adopting universal values of humanity among its main tasks.

With this consciousness of duty, with policies that accept differences as richness and that are aware that differences are a remarkable mosaic, we are obliged to continue our joint works using all facilities of technology today, and take all necessary measures to protect and transfer our cultural heritage that we accept as common values of humanity, that are brought to light by scientific methods to future generations.

With this aim, especially during the last decade the Ministry actions such as raising the financial support given to excavations and researches, practices and administrative arrangements that adopt protection idea over the need of excavating and as a prerequisite to it, field based control, collaborative work, meetings of evaluation and support and cooperation of local institutions have contributed positively to the field of archaeology in the 21st century, and the changed appearance in the generally accepted rules of conservation and archaeology have been accepted by everyone.

Organizing a very broad and crowded international meeting on cultural heritage such as the Annual Congress of European Association of Archaeologists in Istanbul, one of the most important metropolises of the world, should be accepted as a sincere dedication and thanks to veteran scientists who are with us and who are not among us anymore and to Anatolia, the natural laboratory of archaeology.

We believe 20th Annual Congress of European Association of Archaeologists will make a mark in history inside the scientific meetings agenda of our country's and world archaeology by bringing together several scientists speaking the language of archaeology and scientific publications with a broad content. I am congratulating all those who contributed in the realization of this congress starting with Istanbul Technical University who is housing the event. With this occasion I also declare our gratefulness to those who labor in archaeology and all related disciplines.

**Abdullah KOCAPINAR**

General Director of Cultural Assets and Museums  
Ministry of Culture and Tourism of Turkey

## **EAA PRESIDENT'S ADDRESS**

The 20<sup>th</sup> Annual Meeting of the European Association of Archaeologists is held in Istanbul. Being placed at the eastern part of the Mediterranean as well as south of the Black Sea and connecting people from East, North, West and South there can be no doubt, the location of this year's anniversary meeting was well chosen by the executive board amongst different options: after three conferences in the north of Europe it was the geo-strategical position of Istanbul that made the choice.

When visiting Istanbul four years ago our hosts presented a fully developed conference-project, starting with the marvellous historic building of the Istanbul Technical University situated right in the heart of the western part of Istanbul near Taksim square, plans for numerous excursions to be organized by a high professional enterprise and decorated with guides who turned out to be amongst the best experts in the field of the archaeology to be visited. A group of highly experienced, best known and well-connected scientists had been established to run the scientific committee and the rector of the university indicated full support for this year's event.

All preparation of the event that brings the EAA community to Istanbul has been in the hands of Professor Mehmet Özdoğan, a well-known scientist to every prehistorian throughout the world. It is his inspiration and ability to unite people from different parts of the world that has made this event become a success and my personal thanks for his engagement goes to him and his team.

Mehmet Özdoğan is seconded by Professor Turgut Saner, who is not only the link to the Istanbul Technical University, but whose experience in the field of archaeology as an architect bridges all the gaps to neighbouring fields of the subject and helped to open even more doors. His diplomatic capacity is the key to many new co-options for this annual meeting of the EAA.

The executive board has supported the local organizers and both, local organizers and EAA board members, have been very active advertising for the Istanbul conference. Given the input we expected the highest number of participants ever and all planning was built upon an estimated number of 2.000 participants. Already when the call for sessions ended we had to realize that we underestimated the interest of the membership: the number of applications has almost doubled from the last conferences and indicated a superlative we had not expected. When the call for papers and posters was closed this became evident: the number of applications had doubled from any previous EAA annual meeting – what a success.

Now, being overwhelmed by the interest of around 2.400 experts who were keen on giving a paper during the Istanbul conference both, Mehmet Özdoğan together with Turgut Saner and their team and the executive board had to take appropriate measures to adjust to the interest of the membership. Although calculated with big optimism it appeared that the location of the conference was not large enough to take all sessions and papers. Our hosts immediately undertook any effort

to identify a second building, as close as possible to the main conference venue and therefore again in the centre of Istanbul near to the Taksim square. It seems like a miracle that such a second building was found and again this was highly supported by the officials of the faculty who generously offered to host a part of the conference.

The scientific quality of the sessions is high and the variety of themes will make this annual meeting an unforgettable scientific event.

Annual meetings of the EAA have become an essential part of the agenda for Archaeologists working in Europe and beyond. They have grown up to be Europe's most important meetings for all those who are dedicated to Archaeological Heritage, researchers, managers and administrators, excavators and curators, teaching staff and students, simply everybody who is interested in the archaeological heritage of Europe and beyond. EAA annual meetings are a platform for the exchange and transfer of knowledge and they act as a fair for news, personal contacts and as a market place of ideas for ongoing or planned research or management projects - simply the place where you meet colleagues. Three years ago EAA and Medieval Europe Research Congress (MERC) have successfully developed a partnership scheme and we are glad to see so many medievalists at the Istanbul conference. This year we are welcoming for the first time partners from the Society of Africanist Archaeologists (SAFA), who are organizing some well attended sessions under the umbrella of the EAA. And as stated some years ago, the EAA is open to further cooperation and partnership with other interested associations.

Archaeology in Turkey has a very long tradition and reaches back to the very beginning of the subject. It would take too long to list researchers from Turkey and abroad working together in research and fieldwork around the country. The country has made a large effort to create the administrative and scientific framework to enhance heritage protection and management, developing the presentation of sites and monuments, create new site and central museums all across the country and furthermore to promote the education and support the framework of universities teaching archaeology as the demand for well educated archaeologists for many of the management and curatorial tasks has rapidly been growing over the past decades. No wonder again, that the community of archaeologists has made a large effort to come to Istanbul to listen and learn about the new trends in Turkey and to use the many wonderful excursions to discover and enjoy the flourishing heritage of Europe and beyond.

Due to outstanding sites and monuments of which a remarkable large number has been acknowledged by the world community as World Heritage with outstanding universal values Turkey over the past decades has developed a strategic plan to open sites and monuments to visitors from all over the world. Just to complete the description of activities undertaken by Turkish governments over the past decades it is to mention that Turkey has signed, ratified and implemented all cultural conventions agreed upon under the umbrella of UNESCO and Council of Europe.

The EAA therefore is grateful to hold the annual conference in Turkey with a long standing tradition as a meeting place and a turnaround for people from the west and the east, north and south.

The programme, lectures, presentations, posters and any other activity within the frame of an EAA annual meeting are exciting and promising and will mark another milestone in the history of our association – and furthermore: our hosts have taken every effort to make our stay in Istanbul as pleasant as possible: a welcome reception, opening of special exhibitions on cultural heritage every evening, and the obvious EAA party and conference dinner will keep this event in our mind for ever.

We wish all participants a fruitful and successful conference and thank our hosts for inviting and hosting us.

**Prof. Dr. Friedrich LÜTH**

President of the EAA  
Berlin, June 2014

## **EUROPEAN ASSOCIATION OF ARCHAEOLOGISTS**

European Association of Archaeologists (EAA) was established in 1994 on the purpose of enabling communication among the European archaeologists and helping them to solve their problems. EAA is legally recognized by **the Council of Europe** and given “**consultative status**” within the Council. Since then, EAA has been the authorized body of the Council’s organizations related to cultural heritage and archaeology. EAA has been entrusted with the mission of informing the Council of Europe about anything related to archaeology and Europe’s cultural heritage and develop policies on the matter and determining necessary course of action.

European Association of Archaeologists’ field of interest is on a global scale and broad in scope and anything related to archaeology and cultural heritage is included in the scope. EAA constantly monitors new expansions as well as conventional methods. Association’s field of interest includes all periods from prehistoric to recent period, field work, cultural heritage management, environmental archaeology, archaeology of shipwrecks, underwater archaeology, industrial archaeology, remote sensing, museum studies, conservation and restoration, archaeometry, anthropology, art history, architectural history.

## SALUTATORY ADDRESS

Istanbul Technical University takes pride in as one of the oldest and deeply rooted academic institutions in Turkey. Our University has grown from the “*Mühendishane-i Bahr-i Humayun*” – Imperial School of Naval Engineering- founded in 1773 by Sultan Mustafa the 3<sup>rd</sup>, already by 1847 extending its domain to include architecture. The forerunner of our institution, earning a high level of reputation through time, endured its existence after the foundation of the Turkish Republic as the prestigious base for capacity building in technology, mechanics and architectural practices, was inaugurated as the Istanbul Technical University in 1944. Even though the university is reputed with its long-lasting tradition in architecture and engineering, through the 241 years of its existence has grown to incorporate a wide spectrum of other disciplines, ranging from history of art to musicology, from electronics to mining, taking a leading role in all development projects in Turkey and abroad. At present Istanbul Technical University is one of the most high ranking universities of Turkey, not only by maintaining high level in academic training, but also as a base open to collaboration, international and as well national.

Istanbul Technical University has a long-lasting tradition in housing international seminars, workshops, meetings and congresses. We consider them as the means paving trajectories for innovative prospects and for international collaboration. Even though the university has a modern congress center at the Ayazağa Campus on taking the decision to host the Annual Meeting of the European Association of Archaeologists, it was self evident to house this congress in two of historic buildings of our university- Taşkışla and Gümüşsuyu. We are fully confident that the historicity of these two buildings will summon up the feeling of cultural heritage.

We have been enchanted and honoured in learning that the 2014 EAA Meeting at Istanbul Technical University will be the most extensive meeting not only of the Association with record-breaking level of attendance but also the largest one on cultural heritage, archaeometry and archaeology yet organized in Turkey. We are confident that an international meeting in such a scale will lead the way to new international cooperations and innovative new ideas and new modes in considering the past with all its modalities.

**Prof. Dr. Mehmet KARACA**

Rector  
Istanbul Technical University

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## **Keynote Lectures**

Prof. Dr. Christos DOUMAS

“Aegean Sea: The Uniting Divide”

Prof. Dr. K. Aslıhan YENER

“Bringing Anatolian Archaeology into the Future:  
Past, Present and New Directions”

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## **AEGEAN SEA: THE UNITING DIVIDE**

It is my contention that culture is the sum total of man's responses to the challenges of his environment. The mountainous landscapes surrounding the Aegean Sea host a variety of climates and ecosystems, while funnelling the cold winds from the Russian Steppe towards the Sahara desert, the beneficiary 'Etesian winds' of the ancient Greeks, thus creating a pleasant environment for the islands preventing their desertification. The marine environment of the Aegean Sea was strongly influenced by the opening of the Bosphorus around 6000 BC, when enormous quantities of water started flowing into it from the Black Sea. For besides becoming cooler and less saline, the Aegean Sea was enriched by a mosaic of cyclonic and anticyclonic currents, thus facilitating the early development of seafaring. The latter was also influenced by the configuration of the coastal landscape which was subject to changes due to plate tectonics, alluvial depositions, changes in sea level, etc.

Three distinct geographical zones of the Aegean region –hinterland, coastal and island zone- with their specific environments cradled respectively three distinct cultures in interaction with each other. The earliest of these cultures developed in the hinterland zone by its rural/pastoral Neolithic populations. As soon as the islands were permanently colonized, at least by the end of the 6<sup>th</sup> millennium BC, the island culture moved into the vanguard. The specific environment of the islands, many of which are of volcanic origin, encouraged their populations to shift gradually from the primary sector of the economy (production) to the secondary (processing), largely through exploitation of the mineral resources. Moreover, these innumerable islands for millennia have been stepping stones bringing into contact peoples and cultures between the two continents that flank the Aegean. Thanks this role, it was in the islands that the tertiary sector of the economy (provision of services) developed apace, through maritime trade. This development in the islands resulted in the emergence of the culture of the coastal zone which henceforth became the buffer zone between the other two.

**Prof. Dr. Christos DOUMAS**

University of Athens

Christos G. Doumas is Emeritus Professor of Archaeology at the University of Athens where he taught Aegean Archaeology from 1980 to 2000. From 1960 to 1980 he had a successful career in the Greek Archaeological service as curator of antiquities in Attica, on the Acropolis, the Cyclades, the Dodecanese, and the North Aegean islands, regions where he conducted excavations and organized museum exhibitions. He has also served as Keeper of the Prehistoric Collections of the National Archaeological Museum, Athens, as well as Director of Antiquities and Director of Conservation at the Hellenic Ministry of Culture. Assistant to Professor Spyridon Marinatos in the Excavations at Akrotiri, Thera (Santorini) since 1968, Dr Doumas undertook the directorship of these excavations, after the untimely death of the former in October 1974. Professor Doumas has published several books and scholarly articles on Aegean archaeology, and in particular on the Aegean island cultures.

## BRINGING ANATOLIAN ARCHAEOLOGY INTO THE FUTURE: PAST, PRESENT AND NEW DIRECTIONS

From its initial stages of exploration during the Ottoman Empire and early Turkish Republican period, Anatolian archaeology is now uniquely poised to contribute to 21<sup>st</sup> century inquiry into the historical record of the Ancient Near East. Some of the great fascinating areas of archaeological research in Turkey are the major transitions, one of which is the move by early peoples from hunters to herders to the domestication of plants and animals. With its diversity of mineral rich and fertile environments, dynamic and shifting landscapes as well as interconnectedness via the sea to neighboring regions, Anatolia has produced an amazing array of socio-economic, political and artistic expressions through the ages. Furthermore, new instrumental analyses have sharpened and expanded the sophistication of questions we can now ask of archaeological material and have overturned quite a few entrenched ideas. From monumental scale sculptural imagery in the aceramic Neolithic to the elite expressions of kingship and imperial power during the Bronze and Iron Ages as well as the distinctiveness of the Classical Greek, Roman, and Islamic periods, this paper will introduce the many ways archaeologists have investigated these topics in the past and present and suggest new directions for future research.

**Prof. Dr. K. Aslıhan YENER**  
Koç University, Istanbul

Professor Dr. Kutlu Aslıhan Yener teaches Anatolian Archaeology in the Archaeology and Art History Department of Koç University in Istanbul, Turkey and is professor emeritus from the Oriental Institute, University of Chicago. She specializes in Materials Science in Archaeology, Ancient Metallurgy, Artifactual Analysis, and Environmental Archaeology. She received her PhD and MA from Columbia University, New York and BA from Robert College (now Boğaziçi University) Istanbul. She has been director of the Alalakh (Tell Atchana) excavations since 2003 and also is the director of the Amuq Valley Regional Projects in Hatay, Turkey since 1995. Aslıhan Yener has also directed excavations at Chalcolithic Tell Kurdu and at the Early Bronze Age tin mine, Kestel and its processing site, Göltepe from 1981-1995. She is the author of numerous articles and books such as *Tell Atchana, Ancient Alalakh. Volume 1: The 2003-2004 Excavation Seasons* (2010), *Across the Border: Late Bronze-Iron Age Relations between Syria and Anatolia* (2013) and *The Domestication of Metals: The Rise of Complex Metal Industries in Anatolia (c. 4500-2000 B.C.)* in 2000. Her discovery of tin sources in Turkey “Kestel: An Early Bronze Age Source of Tin Ore in the Taurus Mountains, Turkey,” became the cover story of the journal, *Science* (1989).

## ISTANBUL TECHNICAL UNIVERSITY

With more than 30 000 students and 2 300 teaching staff, Istanbul Technical University (ITU) is proud of being the oldest technical state university of Turkey. Every year, brilliant Turkish students are admitted to this 241 year old institution to become young engineers and architects. Foreign students are also received in various undergraduate and graduate programs where all courses are run in English. ITU is also involved in Erasmus Exchange Program since 2003 and has the highest grant usage for student mobility among Turkish universities.

The nucleus of ITU is the “*Mühendishane-i Bahr-i Humayun*” – Imperial School of Naval Engineering- founded in 1773 by the Ottoman Sultan Mustafa the 3<sup>rd</sup> in the imperial Golden Horn Dockyard of Istanbul. Specialized personnel in naval construction and marine mapping were formed in this school that later developed to become in 1944 Istanbul Technical University, a prominent, autonomous university of civil engineering, architecture, mechanical engineering and electrical and electronic engineering. In the following years new faculties were added to reach a total of 39 undergraduate programs and 6 institutes today. Settled in 6 different campuses, ITU possesses developed laboratories and rich libraries that help to the success of a great research university. Moreover, with its high technology production power and research and development activities, ITU defines an excellent model of university-industry cooperation.

Over 100 000 living alumni have worked or are still working for the progress and welfare of Turkey. The logo of ITU is a bee symbolizing diligence and perseverance. Istanbul Technical University that has often been the venue for several prestigious international events and conferences is now happy to host the 20<sup>th</sup> Annual Meeting of the European Association of Archaeologists.

### THE VENUES

#### “Taşkışla” Building (TKB)



the Departments of Urban and Regional Planning, Industrial Product Design, Interior Architecture and Landscape Architecture.

The neoclassical building of the Faculty of Architecture was designed by the British architect Smith by the middle of the 19<sup>th</sup> century. Initially it was meant to serve as a military hospital. At a later stage it had been converted into military barracks to guard the Dolmabahçe Palace down on the Bosphorus. After the foundation of the Turkish Republic Taşkışla became property of the Ministry of Education and following the restorations in 1940s it was re-arranged as Faculty of Architecture and Engineering of Istanbul Technical University. Today, the Department of Architecture shares the building with

#### “Gümüşsuyu” Building (MFB)



Engineering of Istanbul Technical University. The Faculty of Textile Technologies and Design is also housed in the building since 2004.

The construction of the building as military barracks goes back to the middle of the 19<sup>th</sup> century. It also housed for a long time the musical school for educating the students of music who would join the imperial military band. In 1920 the Ottoman engineering school was transferred to the building and with some interruptions it stayed in this monumental edifice until today. From 1944 onwards the extensively restored building has been serving as Faculty of Mechanical

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Ancient Technologies in Social Context

## THEME 4

Environment and Subsistence:  
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## **THEME 1**

**“Connecting Seas - Across the Borders”**



## THEME 1: CONNECTING SEAS - ACROSS THE BORDERS

Documenting and substantiating the contacts that took place in the past among distant cultural geographies is usually problematic and to reach a consensus in interpretation is difficult. In addition to these difficulties, unbiased research of distant geographies as the source of certain commodities, technologies, ideas, migrations or invasions has always been a challenge. Until recently, discussions of these issues were mainly based either on historical records or on stylistic comparisons with only occasional references to the presence of distinct technologies and raw materials. Revolutionary developments in archaeological sciences, including isotope analysis, archaeobiogenetics, geochemistry as well as new modes in interpreting cultural assemblages have provided the means to base these debates on more secure grounds. Nevertheless, assessing the interaction across long distances still has particular drawbacks, in particular in contextualising the archaeological evidence of distant geographies with that of the areas concerned. Likewise, several hypothetical models have been suggested to explain social dynamics and the mode of movements that extend beyond territorial boundaries.

The significance of maritime environments is generally overlooked as a medium in connecting distant geographies. Growing interest in maritime and nautical archaeology has accelerated the study of submerged sites, paleocoastlines, ancient harbours and the populating of islands. These new approaches have provided subtle evidence regarding the sustained importance of maritime connections from prehistory to the medieval periods. This theme aims to not only bring together recent evidence, but also to suggest new ways in looking at territorial borders and the role played by maritime environments.



### T01S001 - BALKANS AND ANATOLIA IN PREHISTORY: CULTURAL INTERACTIONS AND BARRIERS

**Organizers:** **Maria Gurova** (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia), **Jean-Paul Demoule** (University Paris I Sorbonne – Panthéon, Paris), **Burçin Erdoğan** (Trakya University, Edirne)

Many studies of the Neolithization process make reference to cultural interactions between Anatolia and the Balkans. As yet, however, no consensus has emerged on the nature, timing and direction of the cultural exchanges between the two regions, which exhibit a wide spectrum of mundane and artistic practices against the background of material cultures that are specific to each region. New concepts and paradigms have appeared only to be discarded when they fail to explain all facets of the archaeological record, such as monochrome vs white-on-red painted pottery, obsidian vs high quality Balkan flints, the full Neolithic package vs the scarce evidence of indigenous hunter-gatherer communities, and demic vs cultural diffusionist perspectives. The session will showcase empirical studies and theory-based investigations of human migrations, and the spread of ideas, technical achievements and social practices in the Balkan-Anatolian cultural interaction zone. The chronological scope of the session is confined to the Neolithic and Bronze Age.

## ORAL PRESENTATIONS

### Kovačevo and the European Early Neolithic

**Jean-Paul Demoule** (University Paris I Sorbonne – Panthéon, Paris), **Marion Lichardus-Itten** (University Paris I Sorbonne – Panthéon, Paris)

This paper will give a brief synthesis of almost thirty years of work on the Kovačevo site, in south-western Bulgaria. The site proves that Neolithization started earlier (around 6200 BC) in this region than the classical Karanovo sequence in the Thracian plain. The large excavated area, of almost 2000 square meters, allows extensive research on the organisation of the settlement. In fact, the variety of the architectural techniques and plans is striking, as is the water management. Kovačevo belongs to a larger stylistic cultural complex, sharing most in common with Giannitsa in northern Greece and Anzabegovo in the Republic of Macedonia. The economy is linked with the Anatolian Neolithic, sheep and goat representing 80% of the domestic animals. Interesting is the earliest use of the castration of cattle. The contacts with Anatolia are also visible in the ornamentation of pottery, as well as in the bone technology. The functional and technological studies of ceramics are almost completed, as are those of the various types of lithic material.

### Lithic Studies: An Alternative Approach to Neolithization?

**Maria Gurova** (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia), **Clive Bonsall**

Most models of Neolithization of the Balkans have focused on pottery, with little attention paid to other aspects of material culture. A distinctive feature of the Early Neolithic Karanovo I culture of Bulgaria is a flint industry characterized by 'macro-blade' technology and widespread use of 'Balkan Flint' in conjunction with formal toolkits. The origins of this technology and the associated raw material procurement system are still unresolved. Balkan flint also occurs in EN contexts outside

the Karanovo I culture area, notably in the southern Balkans (Turkish Thrace) and in the lower Danube basin (Iron Gates, S Romania and N Bulgaria). The only securely identified outcrops of BF are in the Upper Cretaceous Mezdra Formation in the Pleven-Nikopol region of N Bulgaria. One of the most challenging aspects of the Neolithization debate is to accommodate the evidence provided by lithic studies. Among outstanding questions are: (i) was BF used by the first (pre-Karanovo) Neolithic communities in Bulgaria; (ii) did access to BF result in the emergence of a new technology; (iii) how does BF relate to obsidian? This paper examines these issues and attempts to show how lithic research can contribute to a better understanding of the Neolithization process.

### **Archaeobotanical Evidence on the Neolithization of Bulgaria in the Context of the Balkans and Anatolia** **Elena Marinova** (Center for Archaeological Sciences, University of Leuven, Leuven)

The current paper will present an overview of the archaeobotanical data on the Neolithisation from two regions of Bulgaria – the Struma valley and the lowlands and ranges north from the Balkan mountains. The archaeobotanical assemblages from both regions are compared using data from five Early Neolithic sites from each region. Strongly similar plant economies are recorded in both the considered regions, but in the northern part a smaller spectrum of crops is observed in contrast to the Struma valley. The plants found growing wild (including wood charcoals as a source of evidence on the woodlands) allow reconstruction of a variety of natural habitats used by the Neolithic inhabitants of the sites. The wide spectrum of wild collected plants also shows a good knowledge and optimal exploitation of the wild plant resources during the Early Neolithic period. The results of the study will be further placed within a broader regional context and compared with archaeobotanical evidence on Early Neolithic sites from the Balkans and Anatolia. The archaeobotanical evidence from both the regions in Bulgaria shows availability of quite rich and favourable environmental resources and this offered good conditions for development of a plant economy of the type known from Neolithic Thessaly and Anatolia.

### **Shaping the Future of Painting: The Early Neolithic Pottery from Dzhulyunitsa, Central North Bulgaria** **Tanya Dzhanezova** (Department of Archaeology, 'St Cyril and St Methodius' University of Veliko Tarnovo, Veliko Tarnovo), **Chris Doherty** (University of Oxford - RLAHA, Oxford)

The focal site, located in the central area of northern Bulgaria is regarded as having strong cultural affiliations with north-western Anatolia. Both stylistically and according to the results of the AMS dating its chronological position is indicated as earlier compared to the Karanovo I culture in Thrace. Thus, the site contains the first evidence so far of the beginning of a new practice - the decoration of vessels from the so-called monochrome stage of the Neolithic pottery production in present-day Bulgarian lands. Furthermore, Dzhulyunitsa comprises also pottery from later Neolithic stages (characterised by white-painted decoration), which allows us to trace the development of the practice and/or changes in the process. The present paper elaborates on the mineralogical and chemical results obtained by analysis of the earliest decorated pottery found in the specified site. It represents the first interdisciplinary analysis of this material and offers the possibility to further examine the presumed relations between northern Bulgaria and north-western Anatolia from another perspective.

### **Community Interaction in the Early Neolithic of Central-Northern Greece: A Pottery Perspective** **Anastasia Dimoula** (Aristotle University of Thessaloniki, Thessaloniki), **Kostas Kotsakis** (Aristotle University of Thessaloniki, Thessaloniki)

Early Neolithic communities in Greece have been considered, on the basis of pottery data, to be characterized by a low degree of interaction. Interaction is thought to have been limited to the intra-site level, while pottery does not appear to participate in the intra and/or inter regional networks. However, the recent interdisciplinary study of the pottery assemblages of a series of early Neolithic sites in Thessaly (Theopetra Cave, Sesklo, Achilleion, Argissa, Otzaki, Soufli, Melissochori) has indicated that these communities were not isolated from each other; indeed they had developed modes of interaction, related to the mobility of people, artefacts and ideas. It appears that they were active agents, characterized by a high degree of mobility in the landscape, resulting in contacts and exchanges of various structures and extents. Moreover, preliminary results from the current study of early pottery assemblages from central Macedonia (Paliambela, Lete) have indicated a similar pattern, extending the network to both the north and the east. This paper suggests that early Neolithic communities in Greece were highly interactive in the context of mobility and networking, resulting in the exchange and spread of ideas in the Aegean and the Balkans during the VII and VI millennia B.C.

### **Ceramic Assemblages as Evidence of Social Interaction in Neolithic Anatolia and the Balkans** **Beatrijs de Groot** (Institute of Archaeology, University College London, London)

How do ceramics relate to the transition and collision of cultural traditions during the Neolithic in Anatolia and the Balkans and what does it tell us about the social processes underlying the spread of people and ideas through southeastern Europe some 8500-7500 years ago? In this presentation I will approach this question through delineating the spatial and temporal spread of attributes related to Neolithic ceramic production and style. The earliest ceramic production in

Anatolia and the Balkans occurs in times of demographic growth, climatic fluctuations and processes of migration, all related to the transition to a 'Neolithic' way of life. The process of Neolithisation, including the transition to a sedentary farming lifestyle and control over domesticated animals and plants, is not a uniform process and its exact pace and spread is not well-understood. Ceramic technology and style, although occurring and spreading at its own rate, marks an aspect of the Neolithic in this region. Through the statistical- and spatial analysis of pottery attributes I present a method to display patterns in the transmission of ideas and innovations. These results will form the basis for a discussion about the nature of social interactions during the Neolithic in Anatolia and the Balkans.

### **House-Related Practices as Markers of the Neolithic in Anatolia and the Balkans**

**Maxime Bami** (Archaeology, Classics and Egyptology, University of Liverpool, Liverpool)

Beyond farming practices, the Neolithic witnessed the inception of a new set of residential and construction practices, pertaining to the ways in which houses were built, lived in and discarded at the end of their use-lives. These practices provide useful markers to trace the spread of Neolithic innovations in Anatolia and the Balkans. Understanding how different societies go about doing things and tackling problems that arise from domestic life has the potential to provide significant insight into the level of interaction between them. This presentation, which summarises the findings of my doctoral thesis, tracks each of five main practices or areas of practice from Anatolia to Europe: house closure, house replacement, residential burial, spatial organisation in the rectangular house and agglutination. Against the background of a broad continuum of practices, which implies that Neolithic communities in Anatolia and the Balkans were involved in very similar sets of actions at any given time during the interval c. 6,500-5,500 BC cal., regional enclaves, such as the Coastal Fikirtepe tradition in the Eastern Marmara region, in which practices were markedly different or altogether alien, provide an insight into both the norm and its exception.

### **Frog in the Pond: Gökçeada (İmbros), an Aegean Stepping-Stone in the Prehistoric Use of *Spondylus* Shell**

**Emma Baysal** (British Institute at Ankara, Ankara)

The use of marine shells in the manufacture of bracelets and beads is a well attested phenomenon of the Neolithic and Chalcolithic periods of Western Anatolia, the Aegean and the Balkans. The site of Gökçeada Uğurlu, located on an island in the Aegean between mainland Europe and Anatolia shows evidence for the manufacture and use of bracelets and beads from *Spondylus* and *Glycymeris* shell. This use of personal ornamentation ties the site into one of the widest material culture production and trade networks of the prehistoric period. This paper explores the possible role of, and influences on, an island site within the wider context of long-distance exchange. The life history of shell products is investigated, showing that a bracelet may have gone through processes of transformation in order to remain in use. It also questions whether there was a relationship between the use of marine shell and white marble from which similar products were manufactured in contemporary contexts. In its conclusions the paper addresses the value of materials and of the personal ornaments they were used to make in this island context.

### **Opportunities for Tracing Influences of the Balkans on Anatolia during the End of the Fifth and the Beginning of the Fourth millennium BC**

**Petya Georgieva** (Department of Archaeology, Sofia University 'St Kl.Ohridski', Sofia)

During the fifth millennium BC the population from the region of Thrace and the Lower Danube develops the earliest known metallurgy which is based on mining. This leads to significant socio-economic changes – development of trade, specialization in some types of production, the earliest signs of socio-economic differentiation. The level of development of that culture is the highest at the time. During the fourth millennium the continuous development of the local cultures gradually stops and new cultures appear in their place, considerably simpler from a technological point of view. This is a gradual process which starts at the end of the fifth millennium. There are traces of movement of a cattle breeding population from the steppes of Eastern Europe towards the Lower Danube and Thrace on one hand and a gradual decrease in the number of settlements with traditional agricultural population on the other. The data about the number and the territorial distribution of the settlements from the Late Chalcolithic – the Kodžadermen-Gumelnița-Karanovo VI culture are reason to believe the gradual movement of its population from north to south. The paper discusses the opportunities for tracing influences of the Balkans on Anatolia during the V–IV mill. BC.

## **POSTERS**

### **Ways for Appear of Neolithic in Bulgaria**

**Todor Valchev** (Regional Historical Museum, Yambol)

During the tenth millennium BC in the area of the Fertile Crescent was realized the transition from hunter-gathering to farming. The people discovered polished tools and pottery. Using the natural currents in the Aegean Sea and travelling near

the coastline Neolithic tribes penetrated the European coasts. By the river valleys they moved north and reached the Danube River and the Carpathian basin. The aim of this poster is to present the different ideas in Bulgarian archaeology about the ways by which the people, bearers of the achievements of the “Neolithic Revolution”, penetrated the Balkan Peninsula and from there into Europe. There are two main theories: with boats from Anatolia to the mouth of the Strouma River and from there on north by the Iskar and South Morava valleys or by the Dardanelle isthmus in Thrace and from there on north to the Balkan Mountains and Danube River. According to me the two ways were used in parallel but by different tribes. They had their own way of progress throughout the Neolithic and Chalcolithic. These are well-known Late Chalcolithic cultural complexes Kodžadermen-Gumelnița-Karanovo VI (in East Bulgaria and Muntenia) and Krivodol-Sălcuța-Bubanj (in West Bulgaria, Oltenia and Serbia).

### The Neolithic-Chalcolithic Transition in Western Anatolia and Balkan Relations

**Burçin Erdoğan** (Trakya University, Department of Archaeology, Edirne)

Around 5650/5500 cal. BC, major changes occurred in Western Anatolia. These changes occurred in all aspects of cultural life, as indicated by changes in settlement pattern, spatial organization of settlements, plans of buildings, art and pottery production. This period is characterized by a sudden disappearance of red slipped Neolithic pottery and an appearance of dark burnished Chalcolithic pottery mainly with channelled and pattern burnished decoration and horned handles. Chalcolithic Pottery is of close resemblance to the pottery of the Balkan Karanovo III and Early Vinča cultures. Significant changes around 5500 cal. BC are reported in the Balkans and Greece as well as Central Europe. This poster will discuss the effects of these changes.



### T01S002 - PORTS AND FORTS OF THE MUSLIMS. COASTAL MILITARY ARCHITECTURE, FROM THE ARAB CONQUEST TO THE OTTOMAN PERIOD

**Organizers: Stephane Pradines** (ISMC Aga Khan University, London), **Eric Vallet** (Université Paris I - Panthéon-Sorbonne, Paris), **Ahmad al-Shoky** (Faculty of Arts, Ain shams, Cairo)

Islam was always associated with merchants and trade. This session seeks to understand the development of cities and fortifications related to port areas as places of exchange, but also as places of conflict. Coastal fortifications were often related to port facilities, to protect them or to control them. Understanding the relationship between port functions and defensive structures requires an in depth examination of archaeological remains and written sources, to distinguish what is mere desire to defend the territory against threats coming from the sea, the desire to control the flow of goods and passengers, or just to isolate the port from the surrounding area. What sort of transformation and evolution can we observe in the fortified port sites from the first Arab conquests to the Ottoman Period? Can we determine different strategies of port organisation in the Mediterranean Sea or in the Indian Ocean? The presentation and study of the coastal military architecture will help us to understand this “Muslim Mare Nostrum”, from the Mediterranean Islamic West to the Indian Ocean.

## ORAL PRESENTATIONS

### Les Défenses Portuaires en al-Andalus: Héritages et Stratégies Maritimes (IX<sup>e</sup>- X<sup>e</sup> siècle)

**Christophe Picard** (Sorbonne University, Paris)

Les quelques données que nous possédons sur la politique maritime du califat omeyyade (929-1002), archéologiques et celles, issues des sources arabes –les chroniques du califat de Cordoue en tout premier lieu–, montrent l'importance accordée par le califat à la défense côtière. Les fortifications des ports et des postes de surveillance dans les zones stratégiques de la côte -très étendue- d'al-Andalus, constituent un ensemble assez impressionnant de systèmes de protection du califat, face à la mer. Le réseau défensif n'en constitue pas, loin s'en faut, le seul élément, et c'est bien en tenant compte de l'association des défenses terrestres et de l'investissement maritime pour protéger les « routes » maritimes, que les sites portuaires et l'organisation de leur système des défenses portuaires a été pensé. Dans le même temps, il faut tenir compte de la volonté du calife de présenter l'investissement maritime comme une innovation par rapport aux périodes antérieures, alors que c'est bien en grande partie l'héritage de l'émirat omeyyade, depuis 756, lui-même inspiré par le modèle 'abbasside sur les côtes orientales, qui fut repris et amplifié par 'Abd al-Rahmân III.

### The Keys to the Straits: A Multi-Scalar Synopsis of Islamic Fortified Coastal Installations in the Straits of Gibraltar Geozone, from Abú Ya'qub Yusuf to Abu 'l-Hasan 'Ali

**Martin Malcolm Elbl** (University of Toronto, Toronto)

The paper presents a synoptic analysis of the overall system of Islamic coastal defenses and of their support structures (e.g. shipyards and auxiliary anchorages) on both shores of the Strait of Gibraltar, and explores their proximate and more distant

hinterland linkages within a generalized GIS model. The analysis reaches from the period of Abū Ya'qūb Yūsuf b. 'Abd al-Mu'min (558 AH/ 1163 CE–580 AH/ 1184 CE) to that of Abū 'l-Hasan 'Alī b. 'Uthmān (r. 731 AH/1331 CE–748-9 AH/1348-9 CE), and thus to the Battle for the Strait (Batalla del Estrecho). The paper leverages off the author's recent critical studies of Islamic and post-Islamic Tangier. It seeks to integrate more fully the archaeology of Islamic coastal military architecture into historical analyses of the dynamics of competition between Islam and Christendom for control of the Gibraltar waterway. The paper focuses on the modelling of tactical, architectural, and implicit planning aspects of an overall shift from "control in depth" to "defense of the borderlands" as the geozone gradually split into more distinctively Iberian and Islamic domains. The paper engages the theoretical models proposed by Portuguese researchers for Tangier, Ceuta, and Ksar es-Seghir in 2008-12, as well as recent revisionist interpretations of the 8th/14th-century fortifications of Algeciras.

### **Le port Ottoman d'Alger (1529-1830)**

**Safia Messikh** (Aix en Provence University, Aix en Provence)

L'arrivée des ottomans sur le sol d'al-Djazair en 1529 a bouleversé la destinée de cette petite bourgade sans importance. La création d'un port artificiel à partir d'un groupement d'îlots dont la ville porte le nom, fera d'elle une cité-portuaire fortifiée, capitale de la régence ottomane en méditerranée occidentale. L'arrivée massive des andalous chassés d'Espagne, le développement de la Course et de l'esclavage, et la guerre entre corsaires musulmans et chrétiens a entraîné des tentatives de destruction de la ville par différentes puissances d'Europe. Dès lors Alger devient al Maḥrusā (la bien gardée). Durant les trois siècles de la régence, son port et sa baie seront maintes fois fortifiés. Les deux môles construits parallèles au front de mer après réunification des îlots et reliés à la terre par la jetée portaient en 1830 neuf forts face à la mer présentant plusieurs lignes de batteries armées de 237 canons. Pour les habitants d'Alger le port fortifié était leur premier et plus important bouclier de défense contre l'ennemi venant de la mer. Le port était également le cœur de la ville, sa raison d'être et la source de son activité économique. A la fois militaire et marchand il fut à l'origine de son essor faisant d'elle une puissance méditerranéenne.

### **The Fortifications of Arwad**

**Tarek Galal Abdelhamid** (Cairo University, Cairo)

Arwad, the only island off the coast of Tartus in Syria, is a small but intriguing place. Accessible only by boat and consisting of a web of alleys that permits pedestrian traffic only, this island played its role in Crusader and Mamluk history. Arwad was the last stronghold of the Crusaders after their expulsion from the Syrian mainland in 690AH/1291 AD, then the island was the target of a naval campaign sent by the Mamluk Sultan al-Nassir Muḥammad in 702 AH/1302AD to finally end Crusader presence in Syria after two centuries. It is remarkable that this island has not one but two forts that are very well preserved and have not been studied seriously before. This paper will discuss the history of the island, describe the remaining fortifications (forts and surrounding walls) with an analysis of the architecture and details, specially the machicolations. This is an attempt to document a unique archaeological Islamic military site before it is endangered or even lost in the current turmoil in Syria.

### **The Mamluk Defence System of the Levantine Coast**

**Mathias Piana** (Berlin University, Berlin)

When considering the expulsion of the Crusaders from the Syro-Palestinian coast by the Mamluks, historians agree that they pursued a scorched-earth policy, filling in harbours and razing fortifications in order to prevent the Crusaders from gaining again a foothold there. A survey of the Mamluk fortifications on the coast, however, focusing on evidence brought from the sources and from archaeological remains, provides a somewhat different picture. From the very beginning during the reign of Sultan Baybars, the Mamluks established a multi-tiered defence system consisting of a few fortified marine stations, a chain of watchtowers along the coast and well-garrisoned strongholds in the hinterland. Presenting fresh evidence from numerous sites and written sources, the paper aims to outline the nature of this defence system. Although during that period there was a shift in significance from the coast and its hinterland to the inland, the Mamluks took care to protect the coast by refortifying former Crusader ports, by establishing a string of watchtowers along the coast and by even reinforcing former castles of the Crusaders.

### **Fighting over Fisheries: Ottoman Fortifications on the Adriatic (1788-1822)**

**Emily Neumeier** (University of Pennsylvania, Philadelphia)

This paper investigates how one man—Ali Pasha of Ioannina, the governor of Ottoman Epirus—secured his claim on local economic resources through coastal fortresses. In the early 19<sup>th</sup> century, the collapse of the Venetian Republic as well as Napoleon's expansionist policy transformed the eastern Adriatic (what is now Albania and north Greece) into a contested space where Ottoman, British, French and Russian forces clashed for control over the coast. This international struggle for territory was not only politically significant, Epirus being the Western-most border of the Ottoman Empire, but also a high-stakes competition for local ports and their adjacent fisheries, in which the victor could reap vast financial rewards. Over an approximately 15 year period, from 1800 to 1815, Ali Pasha actively expanded his territory by seizing four former Venetian



port cities—Butrint, Porto Palermo, Parga and Preveza. I demonstrate that the occupation of these cities was paired with an elaborate network of defensive architecture that guarded the ports as well as nearby estuaries.

### **Ottoman Fortifications of the Upper Bosphorus**

**Gizem Dörter** (Koç University, Istanbul), **Lucienne Thys-Şenocak** (Koç University, Istanbul)

The northern region of the Bosphorus had an extensive Ottoman defense system, the construction of which began in the 17<sup>th</sup> century when the Anadolukavak and Rumelikavak fortresses were built on opposing shores of the Straits. Following these, several fortifications and batteries were erected along the northern Bosphorus shores at the end of the 18<sup>th</sup> century because of a perceived Russian threat to Ottoman sovereignty in this area of the Black Sea. From the time they were constructed until the end of WWI, the fortresses and batteries of the northern Bosphorus served as an important line for the defense of the Straits and Istanbul. Therefore the history of the Ottoman fortifications in the Upper Bosphorus region sheds an important light on the developments of Ottoman military architecture in the early modern era, and the international relations of the Sublime Porte, particularly with the French military engineers who designed and often supervised the construction of these fortifications. The region continued to have a strategic role in the defense of the Upper Bosphorus in the 19<sup>th</sup> and 20<sup>th</sup> centuries and was frequently surveyed, mapped and documented in the Ottoman archives, British, French and Russian military reports. This paper examines the transformations and continuity of the Upper Bosphorus region through the history of fortifications.

### **The Walled Cities of the Zanj. Coastal Fortifications in East Africa (900-1800 AD.)**

**Stephane Pradines** (ISMC Aga Khan University, London)

Our contribution presents the fortifications built by and for the Swahili in order to protect their cities and their economy. This research, which began as part of a PhD presented in 2001, will be completed by recent discoveries related to excavations that I conducted in East Africa over the past fifteen years.

### **The Fort-City of Bharuch. A Study Case of Islamic Port Architecture of India**

**Sara Keller** (CNRS UMR 8167 Islam Médiéval, Paris), **Michael Rokotozonia** (CNRS UMR 8167 Islam Médiéval, Paris)

Port towns of Western India encountered Islam two ways: during the first centuries of Hegire, Arab merchants played a major economic role in the littoral settlements of Saurashtra, the Gulf of Cambay and the north Konkan coast. The same ports became, from 13<sup>th</sup> century onwards, the target of Turko-Mughal dynasties establishing their power in North India. During the early age of Islamic rule in India, the active ports of Bharuch, Cambay, and Mangrol thus became the first Islamic ports towns of the Indian Subcontinent. Amongst these cities, Bharuch stands as on today as one of the most astonishing walled port city of northern India. The paper aims to present the fortified city of Bharuch and the military and architectural characteristics of its rampart. The detail building archaeological study of materials, building techniques and built structures shows the importance given to the defence system of the city during the Islamic period. Far before the systematic fortification of major coastal sites done by the Portuguese on the Indian littoral, the port town of Bharuch was not only comprehended as a city or a harbour, but as a fort. The study shall highlight particularities of Indian ports and bring better insight into the Islamic port architecture of India.

### **Fortifications of Banbhore (Sindh, Pakistan)**

**Nicolas Morelle** (Université d'Aix-Marseille, Marseille)

The ancient port of Banbhore is an important site of the Indus delta, near Thatta, still visible by its fortifications. It is one of the rare sites from Indian coast to the Red Sea to be inhabited from Parthians to Muslims (until XIIIth century (because abandon following the Mongol invasion and change of the course of the Indus). Fortification of Banbhore is an urban military enclosure, adapted to the geographical environment (the site was probably surrounded by water). Full and semi-circular bastions, probably Sassanids or Abbasids (during reconstruction at the end of IXth century) are built on the massive enclosure. Many marks in the masonry and stonework suggest a reuse of an oldest city wall, probably Hindu/Parthian with square towers (as Sirkap, Taxila or Hatra in Iraq, but also by the Kushans in Kochambi (Uttar Pradesh, India). The two monumental gateways of the site are surrounded by two towers in Sassanid style. Because this principle of fortification will go back over by the Muslims (after conquest in 712), we question about the importance of the reuse of existing fortifications by Muslims? As well as the function of the defensive network of fortifications in delta of Indus, as Ratto Kot, surely to protect Banbhore.

### **Janjira Fort Its Architectural Elements and Impact on the Fortifications of Western India**

**Ahmad al-Shoky** (Faculty of Arts, Ain shams, Cairo)

Janjira fort is Situated on a rock of oval shape which lies 2 km into the Arabian sea, near the port town of Murud, 165kms south of Mumbai. Originally the fort was small wooden structure built by a Rama Koli chief in the late 15th century. It was captured by Pir Khan a general of Burhan Nizamshah of Ahmednagar (1553-1508AD/972-961AH) who has super-

vised the construction. Later the fort was strengthened by Malik Ambar, the Abyssinian regent of Ahmednagar kings (1610-1625AD/1019-1035AH). The fort has 19 rounded bastions, quarters for officers, mosque, a big fresh water tank. Janjira is one of the strongest marine forts of India, this reputation came from being the only fort along India's Western coast that was remained undefeated from Dutch, Maratha and English East India Company attacks. Later when Sambhaji (1657–1689 AD/1067-1100 AH) -the eldest son and successor Shivaji the founder of the Maratha Empire- failed to capture it, he built another island fort, known as Kansa or Padmadurg fort, just 9km north of Janjira. Despite the importance of this fort it still needs further studies about its architectural elements, and its impact on the forts of the west coast of India.



### **T01S003 - LONG-DISTANCE TRADE AND DOMESTIC ECONOMY BETWEEN BYZANTINE AND THE BALTIC IN THE VIKING AGE**

**Organizers:** **Nikolaj Makarov** (Institute of Archaeology, Russian Academy of Science, Moscow), **Claus v. Carnap-Bornheim** (Stiftung Schleswig-Holsteinische Landesmuseen, Schloss Gottorf Zentrum für Baltische und Skandinavische Archäologie Schlossinsel, Schleswig)

Long-distance trade and exchange of goods between the Byzantine empire and the Baltic Sea region played an important role in the Viking period (8th to 11th centuries AD). In recent studies, trade with Byzantium is regarded as having stimulated economic development and the emergence of political organisation of societies in the Northern and Eastern peripheries of Europe. With increasing archaeological data and new fieldwork at sites and in areas that were previously neglected, however, these ideas need to be re-evaluated. Finds of Byzantine jewellery, silver coins, seals, glass beads and vessels, amphorae and Christian metalwork between the Black Sea and Scandinavia seem to be less numerous than many other traded artefacts, such as Arabic and Western European coins, notwithstanding the special position in the trade system usually accorded to Constantinople. Attribution of a considerable number of artefacts to Byzantine workshops, or the spread of Eastern Mediterranean fashions and technologies to neighbouring regions, remain the matter of debate and require more thorough examination. Nevertheless, long-distance trade between Byzantine and the Baltic in the Viking period has to be regarded as a major influence on domestic economies in the northern peripheries of the Byzantine empire. The study of the impact of international trade on local economic centres in the peripheries, whose wealth was based on the extraction of natural resources from forest areas, is of particular interest.

## **ORAL PRESENTATIONS**

### **Variangians and Greeks in Gnezdovo: Evidence from the Recent Field Investigations**

**Veronika Murasheva** (State Historical Museum, Moscow)

(1) Gnezdovo archaeological complex (late 9th - early 11th century), one of the largest archaeological sites of the period of Russian State formation. The geographical location and the finds show that Gnezdovo was a major political centre controlling "the route from Varangians to the Greeks". (2) Investigation of burial complexes showed that the Gnezdovo population was poly-ethnic, besides Slavs it consisted of Scandinavian incomers. Analysis of grave goods clearly demonstrates also that Gnezdovo was a major centre of long-distance trade, including with the Byzantine Empire. The study of the settlement, however, significantly expands our notion of the nature of the Scandinavian and the Byzantine impact on the Gnezdovo history. (3) Besides the considerable quantity of northern artefacts, found during the excavations of occupation deposit, the Scandinavian influence is detected in the system of space organisation. Some discovered structures demonstrate the North European influence at the formation of the East European town-building practice. (4) The Byzantine impact is detected only on artefact level. The archaeological evidence from the settlement occupation deposit gives us an insight into the nature and evolution of Russian-Byzantine relations, although an adequate reconstruction of their history would require analysing the whole gamut of historical sources.

### **Wiskiauten - A Central Place for Trading Amber from the Baltic to the South?**

**Timo Ibsen** (Center for Baltic and Scandinavian Archaeology, Schleswig)

Situated in world's richest amber reservoir, the Sambian peninsula on the southern shore of the Baltic Sea (nowadays part of Russia's Kaliningrad Region) the Viking Age site of Mohovoe/Wiskiauten since its discovery in the 19th century was regarded as a central place for Scandinavian merchants in the era of the Prussian tribes, although a settlement was never found. The reasons were 500 barrows, which contained many ornaments of Swedish and Gotlandic provenience. Furthermore the location of the site close to the mouth of river Neman/Memel offered a trading route towards the Kiew Rus and the Dnjepr as the main traffic axis to Byzantium and the Caliphates. In the last decade Wiskiauten was newly investigated in the frame of a Russian-German research project. Especially the excavations in the supposed settlement area led to a re-interpretation of the whole site. Amber surely played a role in the trading activities, but long distance trading contacts

– beside some Arabic and Byzantine coins – so far seem to be nearly absent. The question remains: what was Wiskiauten's role in the trading network of the Viking Age between the Baltic and Byzantium? The paper tries to answer this question on the basis of the recent excavation results.

### **Early Medieval Ports of Trade and Their Harbors along the Southern Baltic Sea Coast**

**Sebastian Messal** (Deutsches Archäologisches Institut, Berlin)

The Baltic Sea region in the Early Middle Ages formed the zone of contact between the Scandinavian kingdoms, the Frankish Empire, and the Baltic and Slavic tribal areas. In this period a socially, ethnically, religiously and economically heterogeneous area came into being that afforded excellent opportunities for accessing new markets and disseminating innovations. Beginning in the 8th century the Baltic region witnessed a flourishing of long-distance trade and the development and consolidation of a trans-regional transport network. The central element in the organisation of the exchange of goods consisted of coastal settlements that specialised in trans-regional trade and crafts and were established throughout the Baltic region from the 8th century onwards. These maritime trading centres derived their significance chiefly from the existence of harbours. Archaeological investigations at these ports have been conducted only sporadically between the Bay of Lübeck and Gdansk Bay. Therefore, a new research project was initiated with the aim of a systematic and interdisciplinary investigation of the harbour structures of these emporia. Activities currently in progress include, above all, geophysical and pedological-geological investigations as well as excavations in the area of presumed harbour sites. The first campaigns have already been carried out in Rostock-Dierkow, Usedom and Ralswiek; the most exciting results of these investigations will be presented during the talk.

### **The Early Schleswig Waterfront (11th c.) and Its Role in the Long Distance Eastward Trade**

**Felix Rösch** (Archäologisches Landesmuseum Schloss Gottorf, Christian-Albrechts-University Kiel, Schleswig, Kiel)

Schleswig, the mediaeval successor of viking-age Hedeby, has recently moved into the focus of new investigations. One aspect is the analysis of a number of old excavations, whose features have always been connected to the port of Schleswig. Due to very good preservation conditions for organic material those excavations uncovered large numbers of wooden structures which have been well documented. Using GIS and database programmes, these structures have now been systematically recorded digitally and analysed for the first time. They draw an image of a complex and rapidly developing waterfront in the transition from Late Viking Age to the High Middle Ages. Together with the features countless findings provide evidence of the areas separation into different functional zones. These include artisan plots, a supposed market place and wharf-constructions. Among the finds there is also a number of artefacts that are connected to the eastern Baltic region, the Kievan Rus and to Byzantium. Together with analogical written sources they proof intensive long-distance eastward trade relationships of one the main trading places in northern Europe. Trade relationships that weren't memorable without the appropriate infrastructure provided by the Schleswig Waterfront.

### **Beyond Byzanz: An East-Norwegian Perspective on the Eastward Trade in the Viking Age**

**Jan Bill** (Museum of Cultural History, University of Oslo, Oslo)

Byzanz, by Viking Age Scandinavians called the "Mighty Town", in written sources appears to have held a prominent position in their eastern, economical and political networks. However, numismatic studies have for decades pointed out that in terms of trade between the East and Scandinavia, Byzanz was apparently, during the Viking Age, orbited by trade routes passing through present day Russia on their way to tap the stream of silver from Samanid mines in Central Asia. Being located in the north-western periphery of this network, two simultaneously functioning Viking Age trading sites in Eastern Norway - the well-known Kaupang at Skiringssal in Vestfold and, only 14 kilometres from that, the newfound Heimdal site next to the Gokstad ship burial - offers an opportunity to shed some light on the orientation and character of the links between the western Viking World and these trade routes. Differing more in scale than in scope, both sites are rich in Kufic coins and eastern imports. The paper will focus on comparing the import patterns at the two sites and discuss, whether differences can be established and related to variances in their connections with the eastern trade networks.

### **On Their Way from the Varangians to the Greeks: Viking Age Trade Routes through the Eastern Baltic**

**Marika Mägi** (Tallinn University, Tallinn), **Krista Karro** (Tallinn University, Tallinn)

The earliest Byzantine finds in Estonia are two 5th-century silver-bowls unearthed in the basin of the River Emajgi. These and some later Byzantine artefacts refer to the importance of water routes along central Estonian rivers and Lake Peipus, the Rivers Velikaja, Dvina and Dnepr to Constantinople. More than half of the 215 10th-century Byzantine coin finds in Estonia indicate the abovementioned communication route; the rest have been uncovered along the northern coast of the country. The latter mark a big 12th-century international trade route through Novgorod, called the "Route from the Varangians to the Greeks". The amount of Byzantine coins found in Estonia is about ten times bigger than the number lo-

cated in Latvia and Finland, which probably indicates that Viking-Age traders preferred to pass through the Estonian lands. However, in the 11th-12th centuries the trade route along River Daugava gained importance, probably due to the proper formation of the Russian princedoms. The presentation discusses different routes through the northern part of the Eastern Baltic, focusing on communication with the Byzantium. Special attention will be paid on how the relevance of trade routes changed temporally, and the indication of those transformation in archaeological evidence.

### **Connecting Crimea and Anatolia - New Evidence on Early Mediaeval Trans-Pontic Trade from Sinop**

**Gergely Csiky** (Archaeological Institute of Research Centre for Humanities of the Hungarian Academy of Sciences, Budapest)

Sinope (Sinop) as the northernmost point of Anatolia on the southern Black Sea shore owns a strategic position for trans maritime trade of the Black Sea. The 9-11th century trade amphorae including jars of Tmutarakan-type in the Archaeological Museum of Sinop clearly suggest connectivity of the Crimean and Taman Peninsula during the Khazar and early Rus periods with northern Anatolia. These contacts are even more emphasized by the graffiti on the surface of vessels formerly mentioned. The black tar layers found on the inner surface of several transport vessels strongly refers to crude oil as the original content of at least some jars of Tmutarakan-type, which verifies the contemporary written account of Constantine VII Porphyrogenitus on the naphta sources in the Kuban region and its transportation towards the Byzantine Empire. The harbour of Sinope could have been therefore an important station of the interregional trade between Byzance and Northern Europe.

### **Byzantine Pottery in the Cities of Rus' in the XIth c.: Evidence of Trade and Urbanization**

**Vladimir Koval** (Institute of Archaeology, Russian Academy of Sciences, Moscow)

The Byzantine ceramics was imported to Rus' from the moment of the formation of the state in 9th century, however first time it got to Rus' very seldom. In the 11th century, after adoption of Christianity, the import from Byzantium begins including not only jewelry, but also subjects connected with cultural and religious requirements. Thus, the Byzantine ceramics acts as an indicator of trade and cultural communications. The glazed Byzantine ware was used in orthodox liturgy and became a symbol of the high status and cultural level of her owners. For this reason in 11th c. the local production of the glazed ware starts in Rus', finds of these ceramics in pagan barrow burials are known only in the 11th century. The Byzantine amphorae mark the import of the grape wine, which is also necessary at a liturgy. However in the 11th c. finds of amphorae are known only in the largest cities of Rus' where churches and monasteries were founded. Thus, 11th century became threshold in Rus'-Byzantium relationship behind which (in 12th century) there came the real blossoming of trade and cultural contacts.

### **Medieval Belt Fittings of North-Eastern Rus' as Markers of Social Status, Identity and Cultural Contacts**

**Irina Zaytseva** (Institute of Archaeology, Russian Academy of Sciences, Moscow)

Metal belt fittings are known to be important items of male costume decoration of the Viking age, widespread in different societies over vast territories from the Steppes zone to Scandinavia. The origin of different types of garments, the location of the centres of their production and their role in manifestation of prestige and identity remain matters of debate. Recent field investigations at the dwelling sites of Suzdal region (North-Eastern Rus') yielded about 120 metal objects of belt and bridle-fittings of the X-th-XIII-th cc., discussed in this paper. The greater part dates to the X-th – the early XI-th cc. It is connected with the Volga-Bulgarian craft production centre. Probably, belts, decorated with bronze straps, at that time were widely used in the local communes (especially in those, which had Volga-Finnish cultural background). Their meaning as the markers of high social status is questionable. Dwelling sites and burial mounds of Suzdal region also present other groups of belt fittings, those belonging to the Scandinavian craft tradition of X cc., connected with the workshops of Kiev and the nomads of the southern steppes. Items of these groups were important indicators of high status of their owners, possibly they indicate presence of the military squads of the Kiev prince in Suzdal region in the second half of the X-th c.

### **Between the Baltic and the Black Sea. Byzantine and Scandinavian Travellers in the Early Medieval Period**

**Volker Hilberg** (Archäologisches Landesmuseum Schloss Gottorf, Schleswig)

In the late Viking period the contacts between Byzantium and the Scandinavian north are apparently increasing due to archaeological (coins, silk, glass, pottery, ivory etc.) and historical records (e. g. the role of the Varangian guard" since Basil II. Bulgarochtonos\_ reign). But the contacts between these two regions also stimulated by a demand for exotic and luxurious wares are already in existence for centuries. This paper deals with the changing relations between Viking period Denmark and the Byzantine Empire, their intermediators - the Carolingians in the West or the Rus\_ in the East - and the mechanisms of contact caused by long-distance trade, political envoys or mercenary soldiers. It mainly focuses on new archaeological findings from Hedeby, the largest Danish town and trading centre of the Viking period, where archaeometric analysis has recently proven further connections to the Byzantine and affiliated Islamic Southeast.

## Trade Restrictions and Administration. The Example of Byzantine Silk in the Baltic

**Sven Kalmring** (Centre for Baltic and Scandinavian Archaeology, Archaeological Research Laboratory, Schleswig),  
**Lena Holmquist** (Stockholm University, Stockholm)

Silk has to be rated as a luxury good that played an important role in the display of power. Until the 6th century AD silk that reached Europe was obtained from the Far East and Central Asia. Around 552 AD however Emperor Justinian I. could establish a silk breeding in Syria. The Byzantine silk production was conducted as a government monopoly that persisted for almost 600 years. In Viking-age Northern Europe silk is known from e.g. the magnates' grave of Mammen or maritime trading centres as Birka and Hedeby. Here its occurrence is mostly connected to chamber graves and the highest ranks of society. However its utilisation seems to be restricted to silk ribbons attached as laces onto garments. This observation fits well with trading voyages to Miklagard and the presence of Varangian Guard at the Byzantine Court. Yet its restricted availability in the North also reflects trade regulations in Constantinople limiting the amount of silk to be bought by foreigners severely. Based on the example the paper wants to reflect on prevailing trade restrictions and administration enforcing this kind of regulations. These insights shall be mirrored on cues pointing to administration structures on maritime trading places in Northern Europe.

## Long-Distance Trade, Agrarian Production and Utilization of Natural Resources in the Economy of North-Eastern Rus - in the 9th-11th cc.

**Sergei Zakharov** (Institute of Archaeology, Russian Academy of Sciences, Moscow)

Viking age in Northern Europe and Russia was a time of significant change resulted in the formation of the first States. Many historians believe that the economic basis for these processes were long-distances trade and exchange of goods. Similar processes occurred in the North-Eastern part of Rus' in this period. Considerable archaeological researches, conducted in last decades in Beloozero region, evidenced enormous amount of imported things, reflecting the active involvement of the region in the international trade. Analysis of archaeological materials suggests that the basis of this wealth was a large-scale fur hunting, rather than agricultural production. As on other territory of Russia, early trading artefacts in Beloozero region have associated with Khazaria and Arab countries. Import goods from Byzantium appeared in the middle of the 10th century and are less visible in archaeological collections. Unlike Ladoga, Rurikovo gorodishche and Gnezdovo the first Scandinavian items appeared in the region simultaneously with Byzantine imports. It is important to note another distinctive feature of this region. The current system of economy and the consumption was not interrupted in the end of Viking age, as on the rest territory of Russia. It was in function successfully until the 13th century.

## POSTERS

### The Role of Fur Hunting among the Iron Age Boreal Zone Farmers - Wild Mammals in Osteological Record in the Middle and Late Iron Age Sites in Southern Finland

**Tuija Kirkinen** (University of Helsinki, Helsinki)

In Finland the importance of hunting and fur trade as supplementary economies late into the Historical Era is well known from historical sources, considered an outgrowth of Finland's location on the northernmost limits of cultivation in Europe. In between Swedish and Russian fur trade centers, Finland was connected to Eurasian fur trade network as a producer of high quality furs already during the Iron Age. In Finnish archaeology, the wilderness utilization has been interpreted as a phenomenon which enabled the Iron Age material welfare and development of societal organization and culture in Finland. In this poster the role of fur trade among the Iron Age farming societies were analyzed on the basis of osteological record. First, the quality and quantity of wild animal bones was used to outline the relative importance of hunting. Second, the body part representation of fur animal species was used to evidence the possible selling of furs. Finally, the osteological material studied in this paper was hypothesized to evidence the existence of two partially overlapping hunting strategies in southern Finland.

### Byzantine, Baltic and Viking Influences on Basarabi-Murfatlar Church

**Ion Rodica-Mariana** (ICECHIM, Bucharest), **Daniela Turcanu-Carutiu** (Ovidius University-Constanta)

Long-distance trade between the Byzantine empire and the Baltic Sea region played an important role in the Viking period. Basarabi Complex as a medieval cave complex carved into a chalk hill, is located in the town of Basarabi, Romania, and has small Christian churches, dwellings, crypts and tombs, dated from the 9th until 11th century. There are many inscriptions on the walls written in Asiatic Runes, the Greek alphabet, and Old Slavic Glagolitic and Cyrillic alphabets. The language of these inscriptions may be Proto-Bulgarian, Greek, proto-Glagolitic, Glagolitic alphabet and Runic, correlated with the inscriptions of Murfatlar, Pliska, Ravna, Krepcha, similar with the inscriptions from Southern Ukraine and Caucasus. Proto-Bulgarian ALANUI KAN means the "Khan of the people Alans". The similarity of the Ukrainian characters with that of Pliska and Murfatlar, Armenian sources mentioning that the people "Kash" (the Kassogs = neighbours of the Alans) live "between the Bulgars and the Pontus", and Alanian inscriptions, discovered along the lower course of Don, the Kassogian inscriptions between Don and Kuban, and the Proto-Bulgarian runic inscriptions from Murfatlar, all will be discussed in this paper, cor-



related with some non-destructive scientific investigations. Acknowledgements: This work was supported by a grant of the Romanian National Authority for Scientific Research, CNDI-UEFISCDI, project number 222/2012.

### Scandinavian Imports in the Middle Oka River

**Olga V. Zelentcova** (Institute of Archaeology, Russian Academy of Sciences, Moscow)

Artefacts of Scandinavian origin at the archaeological sites of the Eastern Europe are usually interpreted as imports or markers of direct presence of Scandinavians. Until recent time the middle stream of Oka river displayed only few finds of Scandinavian character, among them - horseshoe fibula with zoomorphic ends from the excavations at Podbolotje burial ground in 1910. Recent investigations at Podbolotje produced a number of new finds, which shed light on the use of the objects designed in Scandinavian style in local Finnish costume. Among the new discovered objects is the round fibula which has analogies at Gotland, in Birka, and in the other Scandinavian burial grounds. Round brooch was found in tact, as a part of garment, at the breast of the deceased women. Podbolotje burial site is known as one of the cemeteries of the Muroma people, burials were conducted since 7th up to the beginning of the 11th cc. Thus, the decorations imported from afar were incorporated into the local traditional dress of Finnish settlers of Oka river. The appearance of the Scandinavian fibula in the costume of the aboriginal population of muroma demonstrates the penetration of the cultural attributes of the newcomers, probably as special markers of wealth and prestige.



### T01S005 - GOING WEST? THE SPREAD OF FARMING BETWEEN THE BOSPORUS AND THE LOWER DANUBE REGION

**Organizers:** **Zoï Tsirtsoni** (Centre National de la Recherche Scientifique-CNRS, Paris), **Agathe Reingruber** (German Archaeological Institute-DAI, Eurasia-department, Berlin), **Petranka Nedelčeva** (New Bulgarian University, Sofia)

The possibility of the diffusion of the Neolithic way of life from the Near East to Europe via Northwestern Anatolia has been repeatedly discussed in recent years. However, the rich evidence from the Asiatic side contrasts with the much scarcer evidence from the neighbouring European lands, i.e. Thrace (Turkish, Bulgarian or Greek). This session aims at putting together information concentrating on the geographical area as defined by the Axios-Strymon valleys in the West and the Bosphorus in the East. In these parts the very early stages of the Neolithic are less well known or less well investigated so far. We would like to enlarge the discussion about a possible Neolithisation of the area from the West (from the Starčevo-Criș area), as usually suggested, by emphasizing the role of Northern Aegean sites and those from Thrace. By stretching the frame northwards up to the Lower Danube Region, we wish to contrast the mechanisms valid for the spread of farming in the area south of the Balkan Mountains with those proposed for the areas north of it. We invite scholars (archaeologists as well as geomorphologists and radiocarbon specialists) that are currently working in these areas to come share their results and/or ideas, focusing on the questions of setting and topography of settlements, taphonomy, and chronology.

### ORAL PRESENTATIONS

#### Surface Materials from the Istanbul Prehistoric Survey and the PPN

**Şengül Aydingün** (Kocaeli University, Kocaeli), **Volker Heyd** (Department of Archaeology & Anthropology, University of Bristol, Bristol), **Haldun Aydingün** (Bathonea Project Coordinator, Kocaeli), **Ediz Boynikoğlu** (Department of Archaeology, Trakya University, Edirne)

In this discussion, chipped stone artifacts uncovered in Küçükçekmece Lake Basin during the field works of Istanbul Prehistoric Archaeological Survey Project, between 2007-2010, will be discussed. Tool types consist of blades/bladelets, flakes, scrapers and sickle blades. Besides these, naviform cores similar to those known from Near East PPNB technology were also among the findings. This collective group provide information about the technology of the region's chipped flint stone tools. To the west of Istanbul such stone tool technologies have not been observed previously. All of the chipped stone tools collected during the survey are flint stones of different colors and textures. Geologists observed that the raw materials are consistent and of the same characteristics with what is locally found around the Küçükçekmece Lake. Thus, the presence of raw materials' sources indicates that the tools are local production. These tools are tentatively dated to the period of the end of Pre-Pottery Neolithic and the Early Pottery Neolithic. They are considered as proofs suggesting that agricultural know-how of the Near East transferred to Balkans via the geography of today's Istanbul. As such, they are unique and very important.

#### Possible Maritime Connections along the Black Sea Coast during the Neolithic Period

**Eylem Özdoğan** (Istanbul University, Istanbul)

The diffusion of the Neolithic way of life from the core area to SE Europe through the buffer zones such as western and northwestern Anatolia have always been the focus of debates. In the framework of these contact zones, it is clear that the

Aegean Sea and the Sea of Marmara had an active role in this cultural interaction. However, the common components traced along the Bosphorus and the western coast of the Black Sea, especially during the 6th millennium BC, hint to a maritime connection. In the framework of this presentation, the Marmara coasts, the Bosphorus and the western coasts of the Black Sea will be examined together and the role of the Black Sea during this cultural interaction in the Neolithic period will be discussed.

### **Bosphorus: A Border or a Bridge between Anatolia and the Balkans during the Neolithic Period?**

**Necmi Karul** (Istanbul University, Istanbul)

Until twenty years ago the cultural interaction between Anatolia and the Balkans had been reconstructed by comparing the sites far from each other. Nevertheless, the new researches from the buffer zones between Anatolia and the Balkans have enabled the situation in the Neolithic Period to become more and more clarified. Today, the archaeological researches taking place in one of these buffer zones in Northwest Turkey hint that the situation was much more complicated. The settlements dating to ca. 6500-5500 BC situated on both sides of the Bosphorus show that there were many important differences as well as similarities between Northwestern Anatolia and Eastern Thrace. These similarities and differences give a general picture and add dimension to the form of connection between Anatolia and the Balkans, in spite of not being enough for us to totally understand the extent of the interaction between them.

### **The Main Techno-Typological Features of the Lithic Industries of Marmara Region and Thrace during the Neolithic Period**

**Petranka Nedelčeva** (New Bulgarian University, Sofia), **Ivan Gatsov** (New Bulgarian University, Sofia)

Lithics are very often targets of interregional exchange and as products of elaborated production they often display the spread of common traditions or spheres of cultural communication. The principal objective of this paper is to present the main technological and typological characteristics of the Neolithic chipped stone assemblages from the South Marmara region and Thrace, that date to the 7-6th millennia BC. As a whole, the research reveals the uniformity concerning the bullet-core blade technology and the system of flint and obsidian procurement in the South Marmara region. This technology implies some evidences for common lithic traditions in the region. Moreover the aim is to present the general nature of lithic assemblages from the prehistoric settlements in Eastern and Northern/Upper Thrace, and particularly from Asağı Pinar in the light of new results which were acquired recently. The availability of macro blades with high semi-steep and steep retouch in the settlement of Asağı Pinar, provides new knowledge concerning the production and distribution of lithic artifacts dated to the beginning of the 6th mill BC in Thrace.

### **The Role of North Eastern Aegean Islands in the Neolithization of Southeastern Europe**

**Burçin Erdoğan** (Trakya University, Edirne)

The site of Uğurlu at the Island of Gökçeada (Imbros) is the earliest Neolithic settlement (ca. 6500 cal BC) thus far known in the North Eastern Aegean Islands, and it is likely to be critical for understanding the spread of a Neolithic way of life through to the west. Excavations at Uğurlu show that longer-term or permanent settlement on the Aegean islands was achieved from the early Neolithic onwards by people with an agricultural economic base, including cultivated plants and domesticated animals. The earliest Neolithic settlement of Uğurlu was probably founded by newcomers from Northwest Anatolia. The cultures of island and mainland clearly diverge around ca. 6000 cal BC. Differences in material culture between island and the mainland may be a deliberate expression of local identity within a wider cultural setting. Neolithic Uğurlu is characterized by the most striking evidence of early craft specialization and long-distance communications.

### **Identifying the Earliest Neolithic Settlements in the SE Balkans: Methodological Considerations Based on the Recent Geoarchaeological Investigations at Dikili Tash (Greek Eastern Macedonia)**

**Laurent Lespez** (University of Paris Est Créteil, Paris), **Pascal Darcque** (CNRS, Paris), **Haïdo Koukouli-Chryssanthaki** (Greek Ministry of Culture, Kavala), **Dimitra Malamidou** (Greek Ministry of Culture, Kavala), **Zoi Tsirtsoni** (CNRS, Paris)

The problem of identification of early occupation levels in sites with strong sedimentation, like those recorded in the plains between Thrace and the Danube, is definitely one of the obstacles for a correct understanding of the settlement processes at the start of the Neolithic. The researches carried out in recent years in the tell settlement of Dikili Tash (Greek Eastern Macedonia) have proved indeed that a part of the current archaeological picture and the discourse that accompanies it, is seriously biased by such taphonomical problems. Using this experience as a starting point, we plead here for a closer collaboration between archaeologists and geomorphologists, and propose an entire range of analytical procedures (in the field and at the lab) that could provide remedy to this problem. More than just filling the gap in the regional distribution maps, this knowledge should provide the necessary condition to any discussion about the pace of the eventual spread of the Neolithic economy and cultural system.

### **Lapped by the River Maritsa: The Early Neolithic at Nova Nadezhda, SE Bulgaria, in Regional Context**

**Krum Bacvarov** (Bulgarian Academy of Sciences- National Institute of Archaeology and Museum, St Kliment Ohridski University of Sofia, Sofia), **Nadezhda Todorova** (St Kliment Ohridski University of Sofia, Sofia), **Vanya Petrova** (St Kliment Ohridski University of Sofia, Sofia), **Georgi Katsarov** (St Kliment Ohridski University of Sofia, Sofia)

The prehistoric site of Nova Nadezhda in Bulgarian Thrace now lies some 300 meters from the river Maritsa, but geological investigation seems to suggest that in prehistory the river may well have lapped at the lower slopes of the site. Recent extensive excavation at this double-tell site has yielded evidence of more or less continuous use throughout the Neolithic and Copper Age. The Early Neolithic occupation (Karanovo I period, early sixth mill. BC) demonstrates some common elements of material culture, such as the white-painted pottery assemblage; the most striking features, however, are the multiple enclosure ditches, as well as the unexpectedly large number of burial contexts. This presentation will focus on the Early Neolithic occupation at Nova Nadezhda and will explain its development within the wider context of contemporaneous sites in Thrace that show similar settlement patterns and material cultures, while at the same time argue that the immediate proximity of the river left a distinct imprint on life at the site.

### **Thrace after 6,000 BC**

**Vassil Nikolov** (Bulgarian Academy of Sciences-National Institute of Archaeology and Museum, Sofia)

The first farmers emerged in Thrace around 6,000 BC. The first settlements in the western part of this region appeared slightly earlier than those in the east. Painted ware with rounded forms is typical for the Early Neolithic material culture. In western Thrace, this ceramic style developed longer than in the eastern part. The first dark ware in the west dates from the Late Neolithic and was marked by carinated forms, while in the east dark ware replaced painted pottery after a shorter period of time already during the Early Neolithic. The first dark ware in the east had rounded forms, which eventually developed into the Late Neolithic carinated forms. This fact suggests that the first farmers entered Thrace from the west and spread east, including in Eastern Thrace, without reaching the Black Sea coast. Their origin probably was southern Anatolia, where painted pottery was an important characteristic of early farming cultures at the end of the seventh and beginning of the sixth millennium BC.

### **Beginnings of the Neolithic in Northern Bulgaria. The Early Neolithic Sequence from Džuljunica-Smārdeš**

**Raiko Krauss** (University of Tübingen, Tübingen), **Nedko Elenski** (Historical Museum of Veliko Tarnovo, Veliko Tarnovo), **Bernhard Weninger** (University of Köln, Köln), **Lee Clare** (University of Köln, Köln)

The Early Neolithic settlement of Džuljunica-Smārdeš (Bulgaria) is a key site for determining the characteristics of the earliest Neolithic in Southeast Europe. Numerous survey trenches excavated in the substantial settlement area have produced an extensive array of finds, including a stratigraphic sequence that contains a large number of highly consistent <sup>14</sup>C-ages on bone-samples. In combination, the archaeological and radiometric data provide good reasons to conclude that the occupation of this site commenced not only early, but indeed at the very onset of Neolithisation in the East Balkans. Furthermore, this site remained occupied throughout the entire Early Neolithic sequence, thus providing us with unique insights into the cultural-historical development in this region at the dawn of agriculture and animal husbandry.

### **The Reconstruction of a Palaeolake in the Lower Danube Valley, Romania**

**Dirk Nowacki** (Department of Physical Geography, Goethe-University Frankfurt a.M., Frankfurt), **Jürgen Wunderlich** (Department of Physical Geography, Goethe-University Frankfurt a.M., Frankfurt)

The paper presents the results of the geoarchaeological studies conducted around the site of Pietrele (jud. Giurgiu), one of the numerous prehistoric settlements along the Lower Danube valley, and discusses the interrelationship between human activities and environmental conditions at these settlements. Old topographic maps and satellite images, which were taken before the floodplain was drained and cultivated in the 1960s, show that the floodplain was covered by lakes, swampy areas and interspersed with small fluvial channels. Our sedimentological, geochemical and palaeoecological analyses of more than 180 sediment cores, which were taken by means of a percussion drilling equipment, indicate however that a vast palaeolake covered nearly the entire floodplain in the study area for an extended period throughout the Holocene. According to radiocarbon and OSL-dating the palaeolake already existed during the settlement period of tell Pietrele and connected the settlements lying on its edge. Furthermore, the lacustrine sediments reflect changing ecological conditions that might be due to increased human impact on the environment.

### **The Neolithic in the Lower Danube Region: Early, Middle or Late?**

**Agathe Reingruber** (German Archaeological Institute, Eurasia-department, Berlin)

Other than the tell-sites which are under research in the Lower Danube area since 100 years, flat settlements in this region are only poorly investigated. Much effort has been undertaken during the 1960ies when in the immediate surroundings



of Bucharest but also near the Danube terraces, ceramic material was gathered and classified into separate phases. Yet no  $^{14}\text{C}$ -dates are available to substantiate such stylistic approaches. Centuries before the Anatolian settlement type, the tell, was adopted during the fifth millennium in this region, the Neolithic communities erected their new houses next and not on top of the old ones. Such single-layered, thin deposits elude the archaeological record, especially when they are hidden under 1-2 m high colluvial soils, as is the case in the Lower Danube region. Thanks to modern methods, e.g. geomagnetic investigations, such cultural layers can be detected, time- and energy-consuming trial trenches becoming obsolete. Promising results have been reached by the German-Romanian team working in Pietrele, where in several trenches around the tell “Magura Gorgana” Neolithic structures have been investigated that belong according to  $^{14}\text{C}$ -dates to the last quarter of the 6th millennium BC.

### **The Lower Danube Plain vs. NW Anatolia: Pottery Trajectories in the Late 7th mill. cal BC**

**Laurens Thissen** (TACB, Amsterdam)

I will discuss technological and morphological characteristics of the Boldul site ceramics (Lower Danube Plain, S Romania), dated to the “Precriș” period (c. 6,000 cal BC). I assume this site representative for Danube catchment settlements. I will use the varying trajectories of ceramic development (specifically the chaînes-opératoires involved) to argue that there is no immediate, trivial connection between the archetypical donor area (NW) Anatolia and the “Precriș” zone in terms of ceramics. Instead, a proposal is developed taking into account local invention combined with sophisticated technologies deriving from elsewhere (potentially Macedonia) to reflect a multivocal explanation of pottery technology and use in the Lower Danube. I will venture the idea that the emergence of dairy processing in NW Anatolia has triggered similar processes in SE Europe, which are reflected in the occurrence of function-specific and similar vessel categories in both areas. The NW Anatolian Barcin Höyük sequence is used to pinpointing this connection in time, suggesting that pottery in the “Precriș” zone was adopted partly to be able to deal with (the processing of) new foodstuffs, amongst which dairy products, as well as was played upon by local inventiveness resulting in independent solutions in terms of manufacture, shape and decorations”.

### **From South to North? A Tracing Way of the Neolithic at the Lower Danube**

**Mirea Pavel** (Teleorman County Museum, Alexandria)

The emergence of the Neolithic at the Lower Danube still remains an issue to be solved, with many gaps in the South Romania region (known as Walachia). Excepting the Danube Gorge, located at the western side of the area, almost all the finds date to the final Early Neolithic period (c. 5700 BC). Archaeological research carried out in the last decade at the key site of Magura, central-southern Walachia, brought new data on the beginnings of the new way of life testifying to the existence of a very old Neolithic horizon (c. 6000 BC), and which is confirmed by a series of  $^{14}\text{C}$  determinations. Recent discoveries on the left bank of the Danube, related to the old terrace remnants and the ancient river course, could be key elements in the Neolithisation in this particular area. We could identify what were most probably flint knapping workshops. Some elements like the “bullet core” type nuclei could be linked to the Mesolithic period, virtually unknown yet in the area, while other finds consist of typical Early Neolithic pottery. These aspects will be discussed in a regional context, including reference to the central northern area of today’s Bulgaria.

### **Mesolithic-Early Neolithic Burials in the Iron Gates of the Danube: Tradition and Innovation?**

**Adina Boroneant** (Institute of Archaeology “Vasile Parvan”, Bucharest)

The Iron Gates of the Danube is one of the most densely occupied areas in south-eastern Europe during the end of the Pleistocene and the beginning of the Holocene. Earlier excavations during the 1960-ies through the 1990-ies uncovered an important numbers of sites and an impressive number of burials. More recent research (both field and lab work) produced interesting data concerning burial practices. The present intervention proposes not only to briefly summarize these results but also to put them in the perspective of similar practices over a larger geographical area.



### **T01S006 - TRACING EGYPT OUT OF EGYPT. A DIACHRONIC APPROACH**

**Organizers: Valentino Gasparini** (Max-Weber-Kolleg, University of Erfurt, Erfurt), **Eva Mol** (Leiden University, Leiden)

The panel aims to draw attention to the process of long distance interactions and to their implications, by analysing the role of Egyptian objects found outside their original contexts and the way such objects were experienced in different settings. The papers will focus on the transformation of values, the complexities of interpretations, and the networks of integration of ‘foreign’ artefacts and ideas. The methodological emphasis lies on the contextualisation of objects and on their impact on people through use and engagement. What role did Egyptian artefacts play within social dynamics, within a specific social setting such as religious practices for instance, but also on a larger scale within cultural dynamics, such as within the creation of Empires? Can we witness change through time concerning the use and perception of Egyptian artefacts and

what do these signify? Not only the agency of objects, but also the process of agency itself will be analysed, by looking at both intentional and unintentional effects artefacts had on their new environments. The session will present and welcomes case studies dealing with pharaonica and aegyptiaca (produced in Egypt or imitating original Egyptian objects), found in the Mediterranean from the Pharaonic period until the late Roman period.

## ORAL PRESENTATIONS

### Introduction to Session

**Valentino Gasparini** (Max-Weber-Kolleg, University of Erfurt, Erfurt), **Eva Mol** (Leiden University, Leiden)

The introductory paper of the session will try to provide a historical and theoretical framework in which the various papers engaging with the use and reception of Egyptian material culture outside Egypt can be discussed. Outside Egypt, the spread of Egyptian and Egyptian-styled artefacts can be clearly observed in many contexts: from the Assyrian Kingdoms, the Phoenicians, the Archaic Orientalizing period in Greece, to Imperial Rome, objects are found in very diverse appearances and contexts. Showing the outreach in both a diachronic and contextual way is one of the aims of the session. Moreover, each of these contexts throughout history had its own reasons for the specific adoption, incorporation, and appropriation of such objects and discussing the variety and complexity of these processes is also something the session wishes to stipulate. Finally, a methodological aim is to review the diversity in use of *aegyptiaca* and *pharaonica*, and to look at what role they played within social and cultural dynamics, the session wants to explore how the 'tracing of Egypt' can become a meaningful concept to study the past. Is it possible (and how) to use so-called *aegyptiaca/pharaonica* or *exotica* as a heuristic device in the study of ancient societies?

### Tracing Egypt out of Egypt in Early Dynastic Period

**Marcin Czarnowicz** (Jagiellonian University of Krakow, Krakow), **Joanna Dębowska-Ludwin** (Jagiellonian University of Krakow, Krakow), **Agnieszka Ochał-Czarnowicz** (Jagiellonian University of Krakow, Krakow), **Karolina Rosińska-Balik** (Jagiellonian University of Krakow, Krakow), **Yuval Yekutieli** (Ben Gourion University of the Negev, Beer Sheva)

It seems that in the Early Dynastic Period the emerging Egyptian state started close relations with inhabitants of the Southern Levant in order to gain luxurious goods (such as wine or olive oil) and natural raw materials (copper, bitumen, constructional wood) indispensable for its further development. To facilitate the exchange, the Egyptians founded a series of trading posts in the most important places of Southern Canaan (crossings of trade routes, sites with production of objects interesting for the Egyptians, etc.). One of such trading post is – most probably – Tel Erani (Israel) excavated under TRONE project. It is well visible there that both cultures, the local and Naqadan, influenced each other. In our presentation we want to present the Egyptian and egyptianized artefacts and to define their possible impact on the socio-political transformation which took place in Palestine during the 4th millennium BC.

### Tracing the Relics of the Naqadan Egypt in Old Kingdom Date Levant

**Marcin Czarnowicz** (Jagiellonian University of Krakow, Krakow)

In unanimous scholar's opinion Southern part of the Southern Levant during the Early Dynastic period was under the Naqadan influence. At many sites dated to Early Bronze Age IB beside local population also Egyptians were living. Such settlements were observed for e.g. at Tel Lod, Tel Erani, Tell es-Sakan or Small Tel Malhata. Period of strong bilateral relations based on the trade comes to the end around the middle of the First Dynasty/ at the end of EBA IB. The first city-states of the Levant didn't rely on the link with Egypt which during the period of the Old Kingdom/ EBA II-III was rather seen as the threat. Even though some artifacts of the Egyptian provenience are still present in the Canaan. Between them a small group of the objects characteristic to the earlier period (Naqada II-IIIC1/ EBA I) is known. They are cylindrical vessels, cosmetic palettes, cylinder seals and other. During my speech I would like to present objects in question and discuss their function in EBA II-III Levant which in many cases were different than the role they were playing in Pre- and Early Dynastic Egypt.

### Iny's Travels

**Alessandro Roccati** (University of Turin, Turin), **Michele Marcolin** (Waseda University, Tokyo)

The recently reconstructed biography of Iny refers to Egypt's trade with Asiatic countries during the 6th Dynasty. Under Pepy I Iny went to three main places: Amaw, Khentesh, Paws, 4 times, in order to provide silver besides "every good produce". Under Mernere Iny went once to Byblos from Rahat, bringing back lapis lazuli, tin, silver, bitumen, besides 3 "Byblos" ships and cargos and every good produce. Under Pepy II Iny went once to Khentesh, and he brought back one "Byblos" ship, silver and Asiatic men and women. The importance of this information concerns the goods (lapis lazuli, tin, silver, even bitumen) along well known trade routes, and some place names, which stick at renowned trade centres of the Old Bronze Age (end of 3rd Millennium to beginning of 2nd Millennium BC), whereas the products can be better identified in their nature.

## Political and Trade Relations between Egypt and the Levant through the Evidence of Egyptian and Egyptianizing Stone Vessels in the Iron Age and Persian Period

**Andrea Squitieri** (University College of London, London)

This paper focuses on the Egyptian stone vessels arrived in the Levant during the Iron Age and Persian period (ca. 1200 – 550 BCE) and their local imitations. Previous studies on Egyptian stone vessels in the Bronze Age Levant have shown how effectively this category of objects can help us better define the socio-economic milieu of Levantine societies by reconstructing their political, commercial and in general cultural links with Egypt through time (Bevan 2007; Sparks 2007). In this study, we intend to highlight the mechanisms responsible for the movements of such vessels across boundaries, such as gift exchange systems, free trade or forced exchange, and subsequently draw the social implications behind them within the context of the historical events affecting the Levant during the period considered. The aim of this study is to contribute to the identification of the economic structures active within the Levantine societies during the periods considered, and to better understand the degree of the socio-economic development of these societies through time on the base of their diverse relations with Egypt.

## The Double-Sarcophagus of Hierapytna (Creta). A Reassessment

**Richard Veymiers** (University of Liège, Liège)

A white marble double sarcophagus held at Istanbul since its discovery in 1893 at Hierapytna, in oriental Crete, is one of the most unusual expressions of the reception of Egyptian ideas in the Aegean world. On the main body of the sarcophagus, a fragmentary high relief represents religious scenes: devotees interact with Nilotic divinities in an architectural surrounding. The plinth has a frieze in lower relief depicting small human and animal figures. Both the sculptural style and the iconographic discrepancies show that this is an Egyptianising work made during the Antonine period by a workshop, not necessarily local, of Greek tradition. This paper analyses this unique monument as far as possible and puts it in context, in an attempt to understand the dynamics connected with it. The decoration of the sarcophagus shows people's concern to express a singular religious identity on their funerary monuments, in the framework of a local religious landscape, where offers are multiple. The real nature of this identity can be approximated through an evaluation of its connection with the Isiac phenomenon across the Mediterranean, and the wave of "Egyptianisation" which emerged following Hadrian's wish to include the Nile valley in his cultural renaissance project.

## The Cults of Egyptian Deities in *Moesia Superior*. The Missing Link

**Danijela Stefanovic** (University of Belgrade, Belgrade)

The epigraphic attestations of Egyptian deities from the territory of *Moesia Superior* are still missing. However, the scant archaeological evidence may shed some light on the worship of Isis and Serapis, respectively. The present paper will focus on two marble heads of Isis (III-IV century AD), and one marble head of Serapis (III century AD) which were discovered in Timacum Minus, the Roman military and civilian settlement, which was situated in the vicinity of the village Ravna, in the eastern part of the present-day Republic of Serbia. The Timacum Minus is by now the only place in Serbia revealing remnants of Egyptian deities. Still, their cultural and religious context is missing. The findings from Timacum Minus are not just important for the fact that by now they are the only vestiges of Egyptian deities in the territory of *Moesia Superior*, but also for challenging the question: is it legitimate to discuss the existence of a cult, in a literate society, without epigraphic attestations?

## Isiac Finds in Local Contexts. *Aegyptiaca* from *Dacia Porolissensis*

**Dan Augustin Deac** (University Cluj-Napoca, Cluj-Napoca)

The spread of *aegyptiaca* finds also covered the remote areas of the Roman Empire, for instance the province of *Dacia Porolissensis*. The presentation will focus on two main urban settlements of the above mentioned province, namely *Potaissa* and *Porolissum*. This periplus will present different *aegyptiaca* finds, their context of discovery and will analyze the purpose they had in the religious practices linked with the Isiac cults.

## Fourth Century *Aegyptiaca* in Rome: Using a Cultural Biography. Perspective for a Better Understanding of "Egypt" in the Late Roman Period

**Lennart Kruijer** (University of Leiden, Leiden)

This paper investigates the roles of Egyptian and egyptianising material culture from the city of Rome in the fourth century CE, analysing the continued relevance of 'Egypt' as a cultural concept in the Late Roman period. Much scholarly attention to *Aegyptiaca* from this period has focused on the privatization and alleged disappearance of the Isis cult in the context of increasingly anti-polytheistic policies of the Christian empire. This paper argues that the religious interpretative framework within which 'things Egyptian' from this period have been understood has left little room for manifestations of 'Egypt' that were not necessarily subject to anti-polytheistic legislation. This paper chooses to consider fourth century *Aegyptiaca* in the context of the cultural biography of manifestations of 'Egypt' in Rome. Using this long-term perspective, it is possible to obtain a clearer image of the use of *Aegyptiaca* in this period, one which is able to get beyond a priori religious understand-

ings of the material, as well as a priori accounts of decline in the use of Egyptian and egyptianising material culture during the Late Roman period. The argument will be illustrated by two case studies: images of Isis and Serapis on *Vota Publica* coinage and a statue of Antinous in the *Domus Gaudentii*.

### ***Aegyptiaca* and Their Material Agency throughout World History. A Phylogenetic Approach**

**Miguel John-Versluys** (University of Leiden, Leiden)

That there are more obelisks in Rome than there are in Egypt itself is but one example of the utmost importance of the category “Egypt outside Egypt”. At the same time, however, it seems that objects looking and being distinctly Egyptian could also claim this quality of “conceptual distance” at the Nile itself. It is certainly true that to understand the category “Egypt outside Egypt” we should primarily focus on the contextualisation of these objects and on the impact they had on people through use and engagement; much more than we should be concerned with “authentic meanings”. Still, although becoming a myriad different (non Egyptian) things in a myriad different contexts in that way, *Aegyptiaca* often seem to exert a similar kind of agency at the very same time. How to solve this paradox? Inspired by recent work in social anthropology that urges us to overcome “the fashionable but helpless reduction of all social facts to contextual contingency”, in this lecture I will try out a phylogenetic approach to understand the enduring material agency of *Aegyptiaca* throughout world history.



### **T01S007 - WHO IS ON BOARD? MARITIME PERSPECTIVES ON THE PREHISTORIC AEGEAN**

**Organizers:** **Çiler Çilingiroğlu** (Ege University, Protohistory and Near Eastern Archaeology Dept., Izmir), **Marina Milić** (University College London, Institute of Archaeology, London), **Barry Molloy** (University College Dublin, School of Archaeology, Dublin)

Interweaving open seas, archipelagos, precipitous coasts and welcoming bays, the Aegean has stimulated maritime routes for many forms of connectivity. In prehistory, seascapes and islands were visited for multiple reasons - acquisition of resources directly or through exchange, transportation, exploring and settling new lands, and raiding or piracy. The sea provided the means for ideas, peoples, technologies and beliefs to be shared through brief or protracted encounters by distinct groups. In this session, we would like to explore the intensity, range and scale of maritime travel across the Aegean through time. It is our aim to visualize the technology, routes, and conditions of sea travel. Through this we seek to address the motives and mechanisms behind mobility and exchange facilitated by maritime interaction. Defining various material correlates for such connectivity, and how we can recognize them through novel theoretical and analytical techniques, will be a core theme. We thus invite speakers to present new research on this much debated topic that will reinvigorate our understanding of the powerful role of sea travel in Aegean societies from the Lower Paleolithic to end of the Bronze Age. We particularly welcome approaches that cross disciplinary and national boundaries.

### **ORAL PRESENTATIONS**

#### **Neanderthals on Naxos: New Evidence for Early Hominins in the Aegean Basin**

**Tristan Carter** (McMaster University, Hamilton), **Daniel Contreras** (Institute for Ecosystem Research, Kiel University, Kiel), **Danica D. Mihailović** (Department of Archaeology, University of Belgrade, Belgrade), **Theodora Moutsiou** (Natural History Museum, London), **Nikolaos Skarpelis** (Department of Economic Geology and Geochemistry, University of Athens, Athens), **Sean Doyle** (Department of Anthropology, McMaster University, Hamilton)

This note details new work at the Stélida chert quarry at on the island of Naxos (Greece), whose characteristically Middle Palaeolithic Levallois tools likely indicate a Neanderthal presence at the site from at least 80-130 thousand years ago. Given that Naxos, as part of the larger Cycladean Island mass, was separated from the Greek mainland by at least 10 km in the Upper Pleistocene (Marine Isotope Stage 5 [MIS 5]), Stélida provides compelling evidence for Neanderthal seagoing and by extent further important support for their behavioural complexity. In this paper we detail the 2013-14 work of the Stélida Naxos Archaeological Project [SNAP], a geo-archaeology study aimed at characterising the history and nature of chert exploitation at the site in the context of new insular Pleistocene discoveries elsewhere in the Aegean. We consider why there is evidence for Neanderthal maritime activity, but not elsewhere in the Mediterranean and consider the relationship between these early seaborne ventures and those of Anatomically Modern Humans in the later Pleistocene / Early Holocene.

#### **Neolithic Voyages to Cyprus: Wind Patterns, Routes, and Mechanisms**

**Daniella E. Bar-Yosef Mayer** (Steinhardt National Natural History Museum and Research Center, Tel Aviv University, Tel Aviv), **Yaacov Kahanov** (University of Haifa, Haifa), **Joel Roskin** (Ben Gurion University of the Negev, Beer Sheva)

Humans first arrived in Cyprus at around 12,000 cal. BP. Visits to Cyprus intensified and resulted in settlement on the island during the PPNA leading to permanent Cypro PPNB settlements with fully developed agriculture. Connections with the mainland enabled the importation of wild and domesticated plants and animals. The seafaring capabilities were examined

by studying: Possible watercraft; sea level, conditions and currents; navigation skills; sailing routes; and mainly prevailing winds in the various seasons of the year and parts of the day (and night). It is suggested that the best (and almost only) sailing route from the southwest Asia to Cyprus by Neolithic navigators was from southern Turkey to Cyprus between April and October. A passage westward or northwestward from the Levantine coast to the southern coast of Cyprus cannot totally be ruled out, although with considerable less chances. Their return trip was from the east or southeast of Cyprus to the Levant coast, thus creating a counter-clockwise route, enabling permanent human settlement on the island.

### **A Network Model for the Aegean Neolithic**

**Martin Furholt** (Institute of Pre- and Protohistory, Christian-Albrechts-University Kiel City, Kiel)

The establishment of early sedentary and Neolithic settlements on three shores along the Aegean Sea is a process that is still rather poorly understood, due to several reasons. First, research agendas have seldom treated contemporary sites situated in modern-day Greece and Turkey that are, despite modern-day political boundaries, in close geographical proximity to each other, under one unified analytical framework. Second, the discipline suffers from the consistent application of two-dimensional models concerned solely with the questions of “cultural territories”, “the spread of the Neolithic”, and «demic diffusion”. Given the maritime nature of the Aegean and its adjacent islands and landmasses, such planar, aerial views are somehow inappropriate. In this contribution, a network approach is applied that models the spread of early Neolithic settlements along the Aegean from a maritime viewpoint, in light of the long tradition of seafaring known from this region. In addition, a network analysis using material culture patterns helps to understand the mechanisms of maritime exchange and the possibilities of trans-Aegean contacts during the first millennium of Neolithic settlement.

### **Finding Their Sea-Legs? The Growth of Neolithic Seafaring Knowledge on the East Aegean Littoral**

**Marina Milić** (Institute of Archaeology, UCL, London)

Obsidian is a prominent proxy used for tracing early seafaring in the Aegean, from at least the Upper Palaeolithic. Moreover, its long-distance movement through sea- and landscapes has helped to explain various human actions –migration, colonisation, and a range of exchange practices. Looking to the earliest evidence of systematic exploitation of obsidian, this paper focusses on the Early Neolithic (mid-7th/early 6th millennium BC) communities that lived in the East Aegean littoral. These communities have been linked to inland population movements from Central Anatolia, but it is clear that they rapidly took to the seas and were voyaging to the Cyclades to procure obsidian from Melos, prior to the establishment of settlements on the islands in the Late Neolithic. The aim of this paper is to measure the intensity and temporality of the development obsidian procurement using data from excavated settlements. This will be achieved by assessing the character of obsidian procurement in different stratigraphic phases. The overall purpose is to use these data to consider the pace of the growing inhabitation in the Aegean in the Neolithic.

### **Early Impressed Pottery in the Eastern Mediterranean**

**Valeska Becker** (Westfälische Wilhelms-Universität Münster, Münster)

Impressed pottery is often seen as an alternative or counter movement in respect to monochrome and painted pottery of Anatolia, the Balkans and the Carpathian Basin. This perception is probably not quite correct since impressed pottery sometimes composes a significant proportion among settlement pottery in these regions, sometimes even outnumbering painted pottery. Already around the middle of the seventh millennium BC, first impressed pottery is known in the Levant and Cilicia. Around 6100 cal. BC pottery decorated with impressions can be found in north Syria, west Anatolia and the Marmara region, and only shortly afterwards appears in Greece and the east Adriatic. At the same time, impressed pottery can be found in south Italy. The spread of this pottery seems linear, but a detailed study of the decoration rather suggests various waves of distribution, originating from different points of origin.

### **Izmir Region towards the Aegean – A Case Study from Lithic Assemblages of Neolithic Çukuriçi Höyük**

**Bogdana Milić** (Department of Prehistory - Istanbul University, Istanbul), **Barbara Horejs** (Institute for Oriental and European Archaeology-OREA, Wien)

Lithic assemblages from Neolithic period at Çukuriçi Höyük, located near ancient Ephesus in Western Turkey, are marked with high amount of obsidian artifacts, whereas in general, lithic industry is concentrated on blade production. In order to examine settlement connections in Izmir region during the Pottery Neolithic Period, specific technological and typological features of chipped stones are defined, by using house complex 6 from Çukuriçi Höyük as a case study. Certain categories seem to be in common in lithic industry for all settlements in Izmir region such as tendency of blade making, detached mostly by pressure technique, which emerges in Western Turkey in 7th millennium BC. Further, blade and flake removals were carried out on pyramidal and prismatic cores with previous platform preparation. Meanwhile, uniformity of types, defined with low amount of retouched tools and near absence of weapons made of chipped stones at Ulucak and Çukuriçi



contrast the characteristics of Yeşilova and Ege Gübre assemblages, which depict a slightly different image in typological determination. Our final aim is to define the orientation of Neolithic settlements in Izmir region towards the Aegean and examine supra-regional networks by combining previous results with questioning the obsidian representation vs. quality and availability of local raw materials.

### **Just a Boat Ride Away: Ceramic Exchange and Shared Technologies in the Southern Aegean during the Final Neolithic**

**Margarita Nazou** (Institute of Archaeology, UCL, London)

It has long now been argued that during the 4th millennium BC maritime communication played an important role in the transfer of technologies. Even though abundant evidence for interaction among Southern Aegean communities has been produced through the recovery of imported materials (mainly metals, lithics, and ceramics) in archaeological excavations, there have been few attempts to understand how maritime interaction contributed to a sharing of technologies and life-styles among Final Neolithic communities. This paper synthesises the ceramic evidence from Attica, the Cyclades and Crete in order to reconstruct the intensity and nature of interaction of pottery-producing communities. A contrast between closely interacting regions, comprised by both mainland and island areas (such as for example Attica and the Northern Cyclades), and long-range, lower intensity connections (for example between Attica and Crete) can be identified. The current data suggests that closely interacting regions shared common ceramic technologies; pottery-making traditions were most likely diffused through inter-village marriages. In these regions exchanged pottery does not stand out from local repertoires in terms of shapes and surface treatments (and possible functions). In contrast, ceramics travelling further away, being products of different technological traditions could have been used on board, or exchanged and consumed as exotica.

### **Stronger than Waves: Determinants of Contact in the Southern Aegean at the End of the Neolithic and Start of the Early Bronze Age**

**Veronica Maxwell** (Open University-AL, Edinburgh)

This paper challenges the idea that communities in the Aegean and, perhaps to a lesser extent, the Southern Greek mainland, were purely recipients of whatever influences passed their way. Starting from an evaluation of the inception of metals and metallurgy in two Aegean islands, one east, one west, at the end of the Neolithic, findings clearly suggest that, taking into account the artefact biographies of associated evidence, there is a marked degree of intentionality in contact. The extent to which this impacts on the method of inception of metallurgy in the Aegean is therefore raised. The availability of copper itself to these Aegean sites may indeed have played second fiddle to other drivers which are explored in this presentation. This requires us to question the relative significance of metals to communities at this time and the extent to which they were, or were not prepared, to travel.

### **Shiny New Things? Mobility, (non-)Elites, and Values in the Early Bronze Age I Aegean**

**Barry Molloy** (University College Dublin, Dublin), **Borja Legarra-Herrero** (University College London, London)

It has been traditional in Aegean archaeology to consider access to metal and obsidian as indexes of social development and differentiation. Access to both has been considered to have been a driving force in forging terrestrial and maritime networks in the Early Bronze Age. In exploring socio-economic aspects of the networks through which metal and obsidian moved, the role of elite consumption has normally been emphasised. Growing awareness of complex socio-political mechanisms emerging in the Neolithic requires us to reconsider the role of these media from the perspective of processes of social differentiation in Early Bronze Age societies. We use contextual analysis of finds to argue that access to them was widespread spatially and socially, despite the restrictions of maritime acquisition mechanisms. It will be argued that obsidian and early metals (copper, silver, gold) were primarily embodiments of a form of social capital that was related to group well-being. It is suggested this was a function of acquisition mechanisms using long-boats that require a shared commitment from the whole community. The Cretan evidence is considered in relation to the Early Bronze Age Aegean more generally, with specific reference to affordances of maritime transport in the formation of communities since EB1.

### **Questioning the “Maritime Troia Culture”**

**Sinan Ünlüsoy** (Yaşar University, Izmir)

The entire Early Bronze Age at Troia (Troia I-II and III) was interpreted by Korfmann as a single cultural unit because of the continuity in material culture. Moreover, he asserted that the material culture of EBA Troia shows close similarities to the other coastal sites on both the western Anatolian mainland and the islands in the eastern Aegean. Therefore, he coined the term ‘Maritime Troia Culture’ for the EBA levels of Troia I, II and III, the cultural influence of which extends well beyond Troia reaching the north Aegean islands and to the north, as far as the Sea of Marmara. Korfmann was right by proposing a cultural continuity throughout the EBA at Troia. However, there seems to be little general agreement on the extent of the proposed ‘Maritime Troia Culture’ to other parts of the Aegean and Marmara Basins. Besides, EBA Troia seems to have de-

veloped closer ties with the inland Anatolian sites. With this in mind, this paper aims to call into question Korfmann's interpretation of a 'Maritime Troia Culture' by re-examining the Troia's interactions with the Aegean and Anatolian social spheres.

### **The Helladic Galley**

**Shelley Wachsmann** (Department of Anthropology, Texas A&M University, Texas)

A new form of galley (oared ship) appears in Mycenaean iconography at the end of the Bronze Age. This Helladic galley was soon adopted, and adapted, by elements of the migrating cultures known to us today as the 'Sea Peoples.' Documentary evidence indicates that such ships were used for coastal raids, mercenary activities and perhaps even colonization. By the 12th century if not earlier, these vessels had reached the shores of Egypt and the Levant. The most detailed two-dimensional representations of these vessels (from Medinet Habu, Pyrgos Livanaton [Kynos] and Bademgediği) indicate that the series of vertical lines that appears repeatedly on depictions of this vessel type represent an open rowers' gallery intersected by stanchions: the uprights supported a partial deck that ran its length, but not its breadth. Through the rowers' gallery an observer could see the men working their oars. This reconstruction is now confirmed by a new study of a wooden ship model found by W.M.F. Petrie's assistants at Gurob in 1920. At Medinet Habu in Egypt and at Hama in Syria this ship type is linked to the Central European Urnfield Culture indicating that elements of it reached the Near East during the period of migrations.

### **Another look at Aegean Early Bronze Age Maritime Interactions**

**Žarko Tankosić** (Norwegian Institute at Athens/Indiana University, Athens)

During the last decade or so the archaeological community has energetically refocused on prehistoric Aegean maritime interactions. In this process, the Early Bronze Age (EBA) has received special attention. Most of the recent work provides a broad, and badly needed, narrative of the interaction processes that take the entire Aegean (particularly the Cycladic Islands) into account. This paper approaches the issue from the opposite perspective: by looking at a relatively small bounded area and its position in the EBA (and earlier) maritime interaction networks I hope to point out some broadly applicable characteristics. I begin by examining the social context of the EBA maritime interactions using the practice framework. I argue that these interactions moved from its origins in necessity to become desired activity and the most important part of the habitus of the communities that took part in them. I follow this up by a closer look at different kinds of interactions (in terms of distance, frequency, regularity, scale, etc.) and their possible archaeological correlates. Finally, I speculate briefly about the existence of identity-based multiple overlapping dispersed communities founded upon participation in maritime interactions. I base my conclusions primarily on my survey and excavation work in southern Euboea (Greece), which I examine in its broader chronological and regional context.

### **The Unifying Sea? Port Towns and Anchorages in the Aegean and the Levant**

**Assaf Yasur-Landau** (University of Haifa, Haifa)

In a recent book, Broodbank (2013: 358) sees that Late Bronze Age eastern Mediterranean as one of "palaces around the pond"- and views a model of a Mediterranean polity, made of towns, palaces and coastal ports... subordinate villages, farms and occasional elite estates...". Port towns and anchorages are an important component of this landscape of ruler-ship and political economy. They are the loci in which connectivity, a unifying Mediterranean trait, should be strongly manifested and visible in the archaeological record. If so, can we see similarity between the port towns and anchorages of the eastern Mediterranean? This paper will therefore examine the location and patterns of use of these sites in both edges of the eastern Mediterranean: the Greek mainland and Crete, and the southern Levant. Recent advances in the understanding of maritime interactions make this comparison possible. There is a growing body of information about seascapes, anchorages, ports and maritime connections in the Aegean (e.g. Tartaron 2013), while recently published information from coastal as well as from underwater sites of the southern Levant provides ample information on Bronze Age maritime activity to merit an interregional comparison.

### **"All Roads do not Lead to Rome": The Mediterranean and Ahhiyawa**

**Nicolaie Şorodoc** (University of Oulu, Oulu)

In order to reconstruct the social structure built by the Mycenaeans, recognized by various scholars to be the *Ahhiyawans* from the Hittite tablets, one is constantly forced to traverse, to concentrate on any of the opposite sides of the Greek shore. That the inhabitants of the Greek mainland and surrounding Aegean islands could only reach or be reached by the inhabitants of Cyprus or Syria-Palestine by way of the sea, gives the researcher, from the very start, an invaluable clue. That is, a system limits the number of moves an actor can make: "all roads do not lead to Rome." The sea, in contrast to land, has its own laws, its own incentives and requirements, its own power to transform a social system. By revealing systemic constraints, one could solve or understand several paradoxes or puzzles. This paper is an attempt to examine the routes of the sea, the necessities of an expanding Mycenaean civilization, and the mechanisms behind it.

## **Thalassa and Seafaring in the Prehistoric Aegean: Maritime Cultural Practices and Seascapes**

**Steven John Vasilakis** (The University of Sydney, Sydney)

Seafaring in the Prehistoric Aegean and wider Mediterranean, has more often than not, been connected to the modes and practices of exchange systems, exotic commodities, and/or provenance studies attached to these archaeological finds. Contemporary investigations into the social context of seafaring practices and traditions are still rarely explored, and subsequently, poorly understood. This lack of research stems from the terrestrial-based focus which dominates much of mainstream archaeology in the Mediterranean Basin largely ignoring current global discourse on the social context of maritime cultural practices. The aim of this paper is to move beyond material studies and refocus on the people themselves - the Prehistoric seafarers. While it is impossible to know how Prehistoric Aegean seafarers perceived and interacted with the sea, this paper will argue that seafarers, past and present, required an intimate knowledge of the sea, sharing similar concerns that developed into specialised seafaring practices that can be observed throughout recorded maritime history. It further suggests that these practices are visible in the socio-cultural, spiritual, and symbolic meanings that embody the maritime cultural landscape. To this end, this paper discusses the significance of a seaman's perspective to understand how Prehistoric seafarers may have experienced and socially constructed their maritime cultural landscapes and seascapes.

## **Rhapsody in Blue: Exploring a “Maritime Ethos” in the Prehistoric Aegean**

**Helen Dawson** (Free University, Berlin)

The archaeological record for prehistoric seafaring in the Aegean is a kaleidoscope of maritime experience and ingenuity. Knowledge of the sea, coastal locations, islands and their resources was acquired over time and was an all important factor in establishing viable communities across this maritime world. The extent to which people directly engaged with the sea ranged from regular to occasional contacts with neighbouring communities and mainland populations, involving different distance ranges, depending on the type of resources exploited and crafts used. Nevertheless, the sea was a powerful element in people's lives, in terms of their origins, encounters, and affordances. In cultural terms, it defined and connected different communities, in apparently contradictory ways. At the heart of this web of connections was, it will be argued, a “maritime ethos”: a set of attitudes resulting from interaction and leading to further maritime pursuits. Starting with a reconsideration of the terms “seafaring” and “colonisation”, in light of the archaeological evidence from the Aegean, this paper will discuss potential motivations and outcomes of maritime travel, and attempt to reconstruct, over time, what such a maritime ethos might have entailed.

## **Of Tunas and Cockles: Aquatic Foraging as Maritime Engagement in the Prehistoric Aegean**

**Çiler Çilingiroğlu** (Ege University, Izmir), **Canan Çakırlar** (Groningen University, Groningen)

Fishing and shellfish gathering were among the major activities for prehistoric Aegean communities. The mode, scale and range of these activities, however, must have changed through ages as the technology of seafaring and navigational knowledge improved. In this contribution, we would like to explore the diverse mechanisms of interaction facilitated by these activities, by distinguishing two major types of maritime engagements: Coastal, low-risk and non-coastal, high-risk. Low-risk engagements like land-based and inshore fishing as well as shellfish collecting were constant and intense, albeit with little planning, involving diverse social groups. Coastal, low-risk activities must have spurred intra-regional interactions which are reflected in the archaeological record as highly similar material cultures in a given region. High-risk maritime involvements, such as offshore and open-sea fishing, may have entailed careful planning, high navigational know-how and deepened knowledge of the seascapes. This sort of engagement, ethnographically associated with agents seeking adventure or prestige, must have occurred sporadically involving few people with perhaps certain age, gender and social status and had implications for inter-regional interactions across the Aegean. This paper will seek to make an assessment of these interaction spheres engendered by fishing and shellfish gathering practices.

## **Prehistoric Material Culture and Maritime Connection at the Aegean's Edge**

**Andrew Bevan** (Institute of Archaeology, UCL, London), **James Conolly** (Department of Anthropology, Trent University, Peterborough)

This paper considers a material culture of human interaction, left unusually time-averaged and weather-beaten, across the surface of Antikythera. It revisits conclusions from an intensive survey on this tiny Greek island, and explores changing prehistoric patterns that speak of human communities engaged in a considerable range of activities to ensure their viability in an often-marginal place. The early evidence of surface pottery and lithics have been collected in a systematic way across the whole landscape and points to long-range hunting, possible raiding, multiple episodes of colonisation and cultural affiliation, as well as shifting subsistence strategies over a period of several thousand years. Later periods flesh out this view of an occasionally sustained, but often idiosyncratic, desperate and/or transitory island life. Sharply discordant patterns of material scarcity and abundance mirror probable patterns of demographic instability, and this paper seeks to draw some wider analytical and interpretative lessons from these features of Antikythera's past.



## **Dark Seas and Invisible Lands: Reconsidering the Role of Boats and Seafaring in Prehistoric Aegean**

**Despina Catapoti** (University of the Aegean, Athens), **Giorgos Vavouranakis** (National and Kapodistrian University of Athens, Athens)

Most archaeological discussions on boats tend to view them either as the connecting media allowing the operation of exchange/trade networks or as tokens of past maritime technology. Rarely do these studies problematize over the highly demanding conditions (in terms of know-how, natural resources and, labour force) under which these vehicles are produced. No discussion is directed to the investigation of the very complex microcosm that is the boat. Finally, no investigation has been conducted with regard to the ways in which boats shape or alter natural and sociopolitical cartographies. To provide an answer to all foregoing questions, this paper brings forward the premise that for answers to be provided and analytical gaps to be filled, we need to begin to view boats and seafaring as dynamic media for the assembling and re-assembling of people, objects, places, memories, maps and relations. The implications of this premise are examined in relation to the ways in which societies in the Aegean and the east Mediterranean operated and connected to each other during prehistory.

## **From the Outside looking in: Comparative Perspective on Maritime Interaction at the North-Western and North-Eastern Boundaries of the Aegean World in the Late Bronze Age**

**Francesco Iacono** (Institute of Archaeology, UCL, London), **Luigi Coluccia** (University of Salento, Lecce)

Despite many scholars have through time engaged with Aegean maritime interaction, new fieldwork in once neglected regions of the Middle Sea continually changes our knowledge. In this paper we will explore, parallel developments connected to Aegean maritime interaction in two of these relatively little known areas. These are Apulia in the Central Mediterranean, with the site of Roca, and the north-eastern Aegean, with the site of Hephaistia on the island of Lemnos. By the means of these examples, we will look at Aegean interaction from the unusual perspective of two of its peripheries, which are also boundaries between different worlds (Southern Italy, Greece, Anatolia and the Balkans) and social models (kin-ordered societies, tributary states). The sea and maritime interaction will represent the main connecting elements between these diverse realities and an in-depth assessment of the seascape will be the starting point of our analysis. We will address similarities and differences of these two contexts through the second half of the 2nd millennium BC, gaining important insights on the nature of maritime interaction in all its multifaceted expressions, as well as of its most critical social consequences within and beyond the Aegean.

## **POSTERS**

### **Experimenting the Past: Maritime Perspectives on Prehistoric Voyages around the Aegean**

**Vasif Şahoğlu** (Research Centre for Maritime Archaeology, Ankara University, Ankara), **Hayat Erkanal** (Research Centre for Maritime Archaeology, Ankara University, Ankara), **Osman Erkurt** (360 Degree Research Group, Izmir), **İrfan Tuğcu** (Çukurova Üniversitesi, Adana)

Melian obsidian and consumption of deep sea fish at Franchthi Cave (Greek Mainland), clearly indicates the presence of certain sea vessels in use for navigation around the Aegean, already from the 11th Millennium BP onwards. Increased search for metals and distribution of Melian obsidian around the beginning of the 3rd Millennium BC, required new technologies in boat construction and advanced navigation techniques. Maritime contacts around the Aegean seem to have been conducted by the Cycladic seafarers with their longboats during this period. The earliest depictions of these vessels appear on rock carvings in Strofilas - Andros dating back to the Neolithic Period. Depictions of longboats on Early Cycladic II frying pans and small lead models from Naxos, all point to a pretty much similar shape of a longboat with paddles. So far, there is no archaeological record for the use of a sail in the Aegean until the later stages of the 3rd Millennium BC. A recent project about the re-animation of the Cycladic longboats, aims to have a better understanding of the construction and navigation techniques of the time and reveal the advantages and disadvantages of these vessels in transfer of goods and people around the Aegean Sea.

### **Neanderthals on Board: Middle Palaeolithic Sea-Crossings in the Aegean**

**Christina Papoulia** (Department of History and Archaeology, University of Crete, Rethimnon)

This paper discusses the evidence for some of the oldest sea-crossing acts which occurred in the area of the Aegean. New interdisciplinary and on-going research imply that several unfamiliar, insular territories were for the first time occupied during the Pleistocene. This work draws upon the archaeological, geological and palaeoenvironmental data in order to talk about the technological and social aspects of these first maritime crossings and their agents. In particular, by presenting the lithic evidence found on the islands of the southern Ionian and southern Aegean Sea and based on the palaeogeographic reconstructions of the Palaeolithic landscapes and seascapes, this study explores the cognitive and social capacities of the hominin individuals and groups which first used technological means in order to cross both the archipelagos and the open seas. It also proposes the possible maritime crossing routes and discusses the motives that potentially instigated such innovative and high-risk actions.

## Pottery and Sea Routes

**Francesca Porta** (La Sapienza, Università di Roma, Rome)

During the Late Bronze Age the Mediterranean Sea played a main role as a communication way, promoting the union as an important network that permitted the circulation of ideas, objects and people. This study analyzed, using quantitative and statistical analysis, imported pottery found on the contexts of Tiryns, Kommos, Hala Sultan Tekke and Ugarit, comparing it with the ones of the of Ulu Burun, Cape Gelidonya, Point Iria wreckages, pointing to trace a synthesis of the long distance trade contacts on the Aegean and the Eastern Mediterranean areas during the Late Bronze Age. The comparative quantitative assessment of all the different contexts, applied in a systematic way give us the opportunity to understand the role played in the Late Bronze Age by the different areas of the eastern Mediterranean on the traffic of goods (Aegean, Crete, Cyprus, the Levant and Egypt) and how these areas were involved on sea routes, helping to trace differences in the receptivity of the imported ceramic materials.



## T01S008 - HARBOUR CITIES AND MEDITERRANEAN NETWORKING: RECENT PROJECTS AND APPROACHES

**Organizers:** **Felix Pirson** (Deutsches Archäologisches Institut, Abteilung Istanbul, Istanbul), **Christof Berns** (Ruhr-Universität Bochum, Institut für Archäologische Wissenschaften, Bochum)

After the groundbreaking study of Karl Lehmann-Hartleben from 1938, Mediterranean harbour cities have raised greater interest among classical and byzantine archaeologists only since a couple of years. Until then, technology focused studies on single elements such as moles, breakwaters or shipsheds have provided important evidence, but did not stimulate a wider discourse among various disciplines. Current studies, however, attempt to understand the particular urban, cultural, and economic character of harbor cities and try to analyze their particular role within Mediterranean networks. Topics such as urbanism and urban identity of harbour cities, their economy, connectivity and dis-connectivity, orientation towards sea and/or inland, or harbor-networks dominate the current debate. The proposed session intends to give a broad overview of current projects and approaches, including the western and the eastern Mediterranean. Established experts as well as early career researches from Turkey, Germany, Great Britain and France will discuss latest research from fieldwork as well as comprehensive studies. Furthermore, the section includes participants of large-scale European research activities in the field such as the new ERC Roman Ports Project or the Schwerpunktprogramm 1630 of Deutsche Forschungsgemeinschaft: "Häfen von der Römischen Kaiserzeit bis zum Mittelalter. Zur Archäologie und Geschichte regionaler und überregionaler Verkehrssysteme".

## ORAL PRESENTATIONS

### Towards a New Understanding of Roman Ports in the West and Eastern Mediterranean: The ERC Roman Mediterranean Ports Project

**Simon Keay** (University of Southampton, Southampton), **Pascal Arnaud** (Université de Lyon2 La Lumière, Lyon)

Commerce and long-distance movement across the Mediterranean was articulated through networks of ports focused upon the maritime port of Imperial Rome, at Portus (Fiumicino). A new five year research project entitled Portuslimen: Roman Mediterranean Ports (RoMP) and funded by an European Research Council Advanced Grant, is studying a selection of these from both the eastern and western Mediterranean as inter-connected nodes focused upon Rome. In particular, it will focus upon four key issues in the period roughly between the late 1st century BC and the later 3rd c AD: (1) the layout of Roman ports, (2) the organization of commercial activity focused at them, (3) hierarchies of ports, and (4) pan-Mediterranean commercial and social connections between ports. This paper introduces the project by comparing and contrasting the strengths and weaknesses of our existing archaeological and textual information from the western and eastern Mediterranean, and outlining the approaches that will be adopted in the course of the research.

### The Maritime Topography of the Ancient Kane Peninsula: A Micro-Regional Approach to the Impact of Harbours and Anchorages on Politics, Economy and Communication of a Western Anatolian Landscape. Kane Regional Harbour Survey

**Felix Pirson** (Deutsches Archäologisches Institut, Istanbul)

At the western coast of modern Turkey stretches the Karadağ Peninsula – a rocky promontory blocking the valley of Bakır Çay against the Aegean Sea. In antiquity, the mountain was called after the city of Kane, located on the north coast of the peninsula. Together with Pitane (modern Çandarlı), the civic centre at the south coast, both cities must have controlled the coastal areas of the peninsula as parts of their territories. Although located in one of the most frequented areas of the ancient world, the Kane Peninsula conveys a secluded appearance due to its specific geographical situation. Its specific setting characterized by a predominant dependence on sea travel makes the Kane Peninsula a most promising example for the study of the impact of harbours and minor anchorages on political, economical and communication structures of

a micro-region. In this context, the presence of different kinds and sizes of landings for marine vessels will lead to the reconstruction of an ancient harbour network and its local and regional interdependencies with the landscape and various human activities, such as olive groves and pastoral husbandry.

### **Port and Hinterland. Of Dis/Connecting Land and Sea**

**Stefan Feuser** (University of Rostock, Heinrich Schliemann-Institute for Ancient Studies, Rostock)

The aim of the paper on the one hand is to take a look on the maritime connectivity, networks and contacts that evolve from harbour cities and their regarding hinterlands. In which ways were both interconnected and related to each other? On the other hand the paper focuses on the anthropogenic and/or naturally induced abruption or the suppression of contacts and networks. The maritime connectivity of ancient and medieval harbour cities is widely emphasized – as in the call for the EAA meeting – however, what might have been the factors that have led to an intentional or unintentional dis-connectivity? This also alludes to the question of the prospering, the stagnation or abandonment of port cities due to changes of natural, political or economic factors. An intentional dis-connectivity is particularly evident in today's dichotomy between North and South in the Mediterranean; and it was surely a factor in one form or another in pre-modern periods and certainly in ancient times.

### **A Recent Inquisition to the Gulf of Adramytteion, the Harbor City Adramytteion with the Lights of New Researches**

**H. Murat Özgen** (Department of Archaeology, Mimar Sinan Fine Arts University, Istanbul)

Since the numerous references as a political and commercial center of the Gulf in antiquity, the archaeological datas from the harbor city of Adramytteion itself had kept its silence due to the lack of sufficient field researches. The need for covering this gap in the historical knowledge of the region had been the primary intent for us in acceding to the Adramytteion Excavations Projects. Thus, in 2012, a long-term project has started under our supervision. With the Project, the continuity of the settlement, beginning from the Chalcolithic Age going on till the 12th-13th century A.D. had been determined. The find groups of Late Bronze and dense Iron Age contexts, Archaic, Classical, Hellenistic and Roman finds as well, had revealed the importance of the settlement as a major marine trade spot in connection with many centers. By its preserved harbor (dated not later than the 4th century B.C.) the city had linked the settlements of the region with many overseas centers of the Aegean Basin. The paper will summarize this new project with the new important datas yielded in the first two campaigns.

### **Maritime Trade at Northeast Coast of the Issikos Gulf**

**Fusun Tülek** (Department of Archaeology, Kocaeli University, Izmit)

Maritime activities and harbours at the northeast coast of the Issikos Gulf in the Mediterranean Sea during the Roman and Late Antique Periods are not much known. The harbours of Tarsus and Aigeai were two prominent trade ports of Plain Cilicia mentioned in literary sources. The port of Aigeai was placed on the west coast of the Issikos Gulf, close to the mouth of the River Pyramus, thus must have been facilitated by inland settlements of Cilicia as well. Harbours on the east coast of the Gulf are not much known or underestimated as mooring. Yet, the ancient city of Epiphaneia which was the metropolis of the Issos Plain, safely situated 3 km distant from the coast, had a harbour: the Burnaz. Epiphaneia was also strategically placed guarding the entrance of the Kisik pass, the only land route leading from the east coast of the Gulf to the east of Plain Cilicia. Burnaz harbour must have been busy in maritime trade both serving the towns of the Issos Plain, i. e. the chora of the ancient city of Epiphaneia, and of the towns of the Eastern Plain Cilicia.

### **Caesarea Maritima as a Place of Communication with the Mediterranean Koine**

**Achim Lichtenberger** (Zentrum für Mittelmeerstudien, Ruhr-Universität Bochum, Bochum)

In my paper I discuss the harbor city Casarea Maritima, a foundation of Herod the Great, as a place of communication with the Mediterranean Koine. It contextualizes the attitude of the Jews as a political entity towards the Mediterranean, beginning with the Hellenistic period (the Hasmonean state) and terminating with the Herodian foundation of Caesarea Maritima. Although the Jewish state in this period mainly was restricted towards the hill country, there is clearly an opening towards the sea and the foundation of Caesarea Maritima was on the one hand an economic step to include the kingdom into the wider Mediterranean world, on the other hand it also meant a programmatic step to integrate the country culturally into the Imperium Romanum. Caesarea Maritima thus served as a showcase.

### **Elaiussa Sebaste: A Multidisciplinary Study for the Comprehensive Knowledge of a Port City of South-Eastern Anatolia**

**Eugenia Equini Schneider** ("Sapienza" Università di Roma, Rome), **Emanuela Borgia** ("Sapienza" Università di Roma, Rome)

The research project in the ancient port-city of Elaiussa Sebaste, located on the south-eastern coast of Turkey started out in 1995. As proved by the field activities and studies, Elaiussa was an important trade-port of ancient Cilicia, a port of call

and a meeting point for economic and cultural exchange between the eastern and western worlds, developing since the Late Hellenistic Age and preserving its importance until the Early Byzantine Period. In fact the city was located at a crossroads between Syria, Egypt, Cyprus, the Anatolian peninsula, the Western Mediterranean and beyond. The research has been pursuing a multidisciplinary approach to increase the understanding of the city, to reconstruct its development and transformation from the historical and/topographical point of views and its paleo-environmental and climatic changes, to determine the evolution of the ports' infrastructure and related trade activity. Given yet the limited amount of data collected to date related to other settlements in the region, the site of Elaiussa Sebaste, due to its specific characteristics, may be qualified as a significant case-study for the development of knowledge of South-Eastern Anatolia.

### **New Research on the Harbours of Myndos in Caria**

**Mustafa Şahin** (Department of Archaeology, Uludağ University, Bursa)

Myndos was an important regional centre on the Bodrum peninsula. It was described a city with only one harbour by ancient authors such as Herodotus, Polybius, and Strabon. The contribution will present the results of a new research project of Uludağ Üniversitesi at Myndos that lead to the discovery of a second harbour and sheds fresh light on the urban topography.

### **Ports and the Topography of Tombs - Elite Communication in the Mediterranean World**

**Christof Berns** (Zentrum für Mittelmeerstudien, Ruhr-Universität Bochum, Bochum)

In the Hellenistic and Roman periods, monumental tombs were important media of elite communication. They were mostly associated with main overland roads, so both the inhabitants of a city and foreigners approaching it would be able to perceive their messages. In ports, marine traffic in combination with regional inland traffic induced a more complex system of circulation and a greater variety of possible locations for tombs. The paper looks for the impact of harbours on the local topography of tombs and their connection with different communication networks. Starting point will be the situation at Cnidus in South Western Asia Minor, where a complete survey of the necropoleis has been carried out. A comparison to other examples will help to distinguish between local peculiarities and general developments.

### **Ports, Pilgrims & Apollo. Evidence from Three Liminal Zones**

**Anja Slawisch** (Deutsches Archäologisches Institut, Istanbul)

In their respective times, the oracle sanctuaries of Delphi, Didyma-Branchidae and Claros represented 'internationally' renowned centres of pilgrimage and cult. All three were devoted to Apollo; all three acted as fragile liminal zones between the world of humans and the world of the gods; allowing pilgrims—particularly politicians—rare and invaluable answers to the burning questions of the day. Each sanctuary lay, geographically, inland but within sight of the sea, with a dedicated port-of-entry, Kirra, Panormos and Notion respectively—representing a literal liman between land and sea—through which most visitors had to pass before reaching the sacred precincts. This relationship between sanctuary and its port-of-entry forms the basis for this talk. Each sanctuary had its own characteristic and changing fortunes through different eras: Claros, for example, was considered a relatively local cult when connected to landlocked archaic Colophon, but in the Roman era its international profile coincided with the transfer of the name of Colophon to the seaside Notion. What role did each harbour play in the fortunes of the temples as international destinations, or vice versa would these settlements have prospered without their associated temples?

### **Hellenistic Elements in Southern Bosnia and Herzegovina**

**Vasilj Snježana** (University of Mostar, Faculty of Philosophy, Mostar), **Melisa Foric** (Academy of Sciences and Arts of Bosnia and Herzegovina - Centre for Balkan Studies, Sarajevo)

Relations of the Southern Bosnia and Herzegovina with Mediterranean, and particularly with Greece and southern Italy Started in 5th and 4th century, have become more intensive during the last three centuries BC. They represent cultural communication between one widely opened Mediterranean area with another small and quite closed and conservative western Balkan hinterlands. Traditional contents of this area, especially recognizable in material remains, will give place to new Greek-Hellenistic ones which will prevail. The most significant in these processes, except the Greek colonies of Issa and Pharos at central Dalmatian islands, Neretva river will be shown with emporium (ἐμπόριον) in her river mouth mentioned by Pseudo- Scylax in his work Περίπλους (Oplovbi), and Illyrian Daorsii who lived on Neretva riverbanks and who accepted new civilization acquisitions. These changes will influence historical and social movements. At first place it will influence the differentiation of social and military structures and creation of the local aristocracy and military elites; material and cultural conditions recognizable in architecture and urbanism (Gradina in Ošanići as administrative center of Daorsii); rich archaeological material (various pottery originated from different centers, especially from southern Italy; metal findings, characteristic jewelry, weapons and tools; economy, crafts and trade with elements of the commodity-money exchange), as well as the religious life.

## POSTERS

**Serbian-French Bilateral Project: Middle Danube, Lower Sava and Central Balkans: Land of Anchor, Land of Passage from 1st to 5th century A.D.**

**Vladimir Petrović** (Institute for Balkan Studies of Serbian Academy of Sciences and Arts, Belgrade), **Dragana Grbić** (Institute for Balkan Studies of Serbian Academy of Sciences and Arts, Belgrade), **Vojislav Filipović** (Archaeological Institute, Belgrade)

Ancient history of the southern area of Pannonia and the Balkans in the territory of modern Serbia is not sufficiently known, and offers good prospects for scientific research. This statement is primarily related to issues of communication between the Roman provinces in this area, whether on economic or cultural ties, that have not been subjected to more thorough scientific research. To resolve these scientific questions seems necessary, not only to understand the historical processes in the Balkan provinces, but also the diversity of the Roman world in general. During the formation of the first Roman settlements in Serbia, which covers almost the entire territory of the Roman province of Upper Moesia and segments of Dalmatia, Pannonia and Thrace, especially along the Danube frontier, indigenous populations are accepting the Roman lifestyle and customs. Roman conquerors brought with them a variety of influences, trade and cultural ties with Rome and Aquileia and especially with the southern and eastern parts of the Roman Empire. Impacts from the Adriatic coast and Italy, in various forms, can be traced especially in areas of Upper Moesia and Lower Pannonia (the economy, things for everyday use, to religion and art).

**Carbon and Nitrogen Stable Isotopes Analyses of Archaeobotanical Remains to the Study of Food Stuff Origin at Egnazia Roman Harbour (South-Eastern Italy)**

**Angela Stellati** (Università di Bari, Bari), **Girolamo Fiorentino** (University of Salento, Lecce), **Francesco Longobardi** (Università di Bari, Bari), **Grazia Casiello** (Università di Bari, Bari)

The Roman city of Egnazia is located in a region particularly suitable for crop growing thanks to its geomorphological features. Furthermore, its coastal location also projects the city towards maritime trades: pottery recovered in the site, both African and Aegean, testify trades with central-eastern Mediterranean areas. In order to evaluate the economic role of Egnazia in cereal trades and the incidence of cereal imports compared to local production, a series of chemical investigations were carried out. The discovery of a consistent assemblage of caryopses of wheat, related to late antique and medieval levels, offered the opportunity to apply stable isotope analyses in the study of food stuff origin. Edaphical features and water availability are the main factors that influence the N and C ratio in plant remains: significant relationships were observed between the growing-site conditions and the isotope signature in cereals. So, in order to distinguish different harvesting sites among caryopses, stable isotope composition was measured. The isotopic analyses were extended also to charred wood remains of wild local vegetation to identify local pattern. This approach shows how the analysed kernels could refer to statistically distinct groups, then grown in different areas, one of which is not of local production.

**Late Antique City and Harbour Mala Luka, Krk, Croatia**

**Bartul Siljeg** (Institute of Archaeology, Zagreb), **Goranka Lipovac Vrkljan** (Institute of Archaeology, Zagreb)

The site of the late antique city and harbor Mala Luka is known in literature from prospecting and architectural recording of key buildings of this large complex (fortification, church buildings). We present results of an archaeological excavation, the survey of the coastal part of Mala Luka, and aerial reconnaissance. The finds in a trial trench point to the erection of a cella trichora in the sixth century. The discovery of a glass workshop is one of the first of its kind in Croatia. The analysis of glass wares provide more detailed information about their origin and show the links between Korintija and other parts of the Empire. The finds of slag point to a local metal workshop. Reconnaissance of a broader area of the Korintija Bosar-Sokol archaeological zone defined some open questions. The stacked stonewall structure at Kalun is not a hillfort, because it is situated in a depression. According to surveys carried out we can suppose a purely strategic purpose for this late antique city on the strategic maritime route from Senia (via Lika, Siscia) to Apsorus (via Ravenna, Iadera).

**T01S009 - ENCOUNTERS AND TRANSFORMATIONS IN IRON AGE EUROPE**

**Organizers:** **Ian Armit** (University of Bradford, Bradford), **Hrvoje Potrebica** (University of Zagreb, Zagreb), **Matija Črešnar** (University of Ljubljana, Ljubljana), **Philip Mason** (Institute for the Protection of Cultural Heritage, Ljubljana)

The Iron Age in Europe was a period of tremendous cultural dynamism, during which the cultural values and constructs of urbanising Mediterranean civilisations clashed with alternative webs of identity in 'barbarian' temperate Europe. Until recently archaeologists and ancient historians have tended to view the cultural identities of Iron Age Europeans as essentially monolithic (Romans, Greeks, Illyrians, Celts etc). Dominant narratives have been concerned with the supposed origins



and spread of peoples, like ‘the Celts’, and their subsequent ‘Hellenisation’, or ‘Romanisation’ through encounters with neighbouring societies. Yet there is little to suggest that collective identity in this period was exclusively or predominantly ethnic, national or even tribal. Instead we need to examine the impact of cultural encounters at the more local level of the individual, kin-group or lineage, exploring identity as a more dynamic, layered construct. This session draws on a core of papers from the current HERA-funded ENTRANS Project, examining Iron Age cultural encounters in south-east Europe and the East Alpine region, and includes other presentations dealing with various zones of contact where material culture, bodily treatments and patterns of landscape inhabitation provide new insights into the construction and negotiation of identity.

## ORAL PRESENTATIONS

### Encounters on Crossroads: Northern Croatia in the Early Iron Age

**Hrvoje Potrebica** (University of Zagreb, Department of Archaeology, Zagreb), **Janja Mavrović Mokos** (University of Zagreb, Department of Archaeology, Zagreb)

Continental Croatia in the Early Iron Age was located on crossroads of three major cultural areas: Central European Hallstatt cultural complex, the Iron Age cultures of Balkans and the Mediterranean influences, and the Eastern complex across the Danube. As a consequence of its transitional position, Northern Croatia is the ultimate point of distribution for many specific types of material culture, but it was probably even more important as a place of cultural transfer between major cultural zones in Early Iron Age Europe. The major case study will be mortuary behaviour at the site of Kaptol as the most prominent representative of the Pozega Valley Iron Age complex. Through analysis of size, type and inner construction of monuments; reconstruction of burial ritual, as well as material culture related to mortuary practice will provide operative model for Iron Age communication network in this bordering region of major cultural dominions. The mechanism of appropriation and transformation of non-local, ‘exotic and/or prestigious objects and materials will illustrate how communal as well as individual identity was created and negotiated through cultural encounters. On the most basic level, mortuary practice will be placed in appropriate landscape context.

### Zones of Encounters and Zones of Transformations on the South-Eastern Fringes of the Alps

**Matija Črešnar** (University of Ljubljana, Ljubljana)

The last millennium BC brought with it a variety of new impulses to the fringes of the south-eastern Alps. These might be in the form of new materials, knowledge about their manufacture and use, ideas that accompanied them, or people, who possessed and introduced them into this region. These new impulses had a strong impact on the region. They were followed or accompanied by significant changes in landscape organization, burial customs and artistic representations, all of which become materialised manifestations of power. However different regions seem to have responded differently to the new encounters and transformed in their own ways. Tracing these changes to their origins is a difficult endeavour; however an equally demanding task is that of tracing the paths that led to the different responses to these impulses.

### Negotiating Space in the Early Iron Age Landscape of South-Eastern Slovenia: The Case of Vinji Vrh

**Philip Mason** (Institute for the Protection of Cultural Heritage of Slovenia, Centre for Preventive Archaeology, Ljubljana)

The beginning of the Iron Age in the south-eastern Alpine region in the 9th and 8th centuries BC was marked by increasing contact with the circum-Adriatic and wider Mediterranean world. This is reflected in changes in burial rite and settlement pattern, as well as the appearance of exotic artefacts and the increasing use of iron throughout the region. The paper considers the case of the Vinji vrh massif in the central Krka valley in south-eastern Slovenia in order to explore how these changes were reflected within an area that formed one of the major lines of exchange through the region in this period. The Late Bronze Age upland settlements in the area were replaced by a single early Iron Age hillfort centre, which formed a focus for elite expression and competition. The elite burials associated with this centre provide evidence of this, as well as providing insights into involvement in intra- and inter-regional exchange. However, the evidence from the archaeological record also shows that these new forms and structures were negotiated through reference to the earlier settlement and mortuary sites in the area to form a new dominant centre embedded in and articulated by reference to the preceding landscape.

### Encounters and Transformations in Iron Age Art

**Ian Armit** (University of Bradford, Bradford), **Katharina Becker** (University of Bradford, Bradford)

Situla art contains some of the most striking figurative images to emerge from the European Iron Age. The style is applied to elaborate metalwork decorated with complex figural scenes containing both secular and mythic content. Though its centre of gravity lies in northern Italy and Slovenia, it draws heavily on Etruscan technologies and motifs, the latter transformed through the depiction of local objects and clothing styles. A major thematic focus on situla art imagery is the human body,

carefully constructed in relation to posture, clothing and gesture. As such it has the potential to reveal insights into issues of, for example, identity, status and gender at the boundary between the urbanising Mediterranean world and the 'barbarian north. Forming part of the ENTRANS Project (Encounters and transformations in Iron Age Europe) this paper examines the potential of situla art to deepen our understandings of Iron Age cultural encounters in the East Alpine region.

### **Mediterranean Impact in the South-Eastern Alps - Case Study of Burgstallkogel Near Großklein, Austria**

**Marko Mele** (Universalmuseum Joanneum, Graz)

With roughly 700 still visible tumuli and a settlement atop Burgstallkogel, the site of Großklein is one of the most important iron-age sites in central Europe. In the known princely tumuli in the near village of Kleinklein a famous mask with hands, bronze cuirasses and decorated bronze vessels were found. Among grave goods not only imported objects show long range contacts, but also the decorations on vessels, that imply an intrusion of a symbolic and belief system from the Mediterranean world. Since 2010 the Universalmuseum Joanneum is conducting a research project, that tries to connect large scale landscape research with on-site activities. By connecting LIDAR data and GIS models with prospections and excavations we are uncovering the major transport and exchange routes to other Regions from this Hallstatt-period central settlement. In this way we can create a broad picture of long range contacts between the south eastern Alps and the Mediterranean world. The focus of this paper is set on the bronze-iron age transition in Großklein. The key question is how big was the impact of contacts and exchange with the Mediterranean world on the structure of the society, which can be identified from the tumulus graveyards and the settlement of Burgstall.

### **The Venetian-Etruscan-Celtic Encounters in the Po River Lowlands (Northern Italy)**

**Fabio Saccoccio** (Università di Roma "La Sapienza", Rome)

The area between Gazzo Veronese (Verona), and Bagnolo San Vito (Mantova) - North-East Italy - offers the possibility to analyze and interpret the multiple archaeological evidence related to a long-lasting frontier limit. The area corresponds at an early stage to the western border of the developing Venetian cultural group (Final Bronze Age: ca. 1150-950 BC), then to the interaction of Venetians and Etruscans (VI - IV century BC), later to the interaction of Venetians, Etruscans and Celts (IV - I century BC), showing different effects/paths in inter-relationships. The long-term nature of this border-zone is a focal point: past field data and a new research project (GaVe project) set inside a theoretical and methodological approach, can lead to a deeper understanding of the active dynamics. The mentioned area, in fact, shows a complex range of interaction patterns through time, such as reversal of influence areas, creation of autonomous nuclei, movement of objects ("trade"?) and movement of people ("migration"?), integration patterns. The attempt of this communication is to read these significant frontier archaeological features from a local to a regional level, in order to evaluate the shifting human groups identities.

### **Exploring Identity and Mobility in Early Iron Age Europe through Osteoarchaeological Analysis**

**Jo Buckberry** (University of Bradford, Bradford), **Rebecca Nicholls** (University of Bradford, Bradford)

The ENTRANS project aims to create new understandings of social identities and cultural encounters in Iron Age Europe through the medium of the human body. Part of this project involves osteoarchaeological analysis of cemetery populations. We aim to further understanding of the structure and homogeneity/heterogeneity of later prehistoric populations through the exploration of inhumed and cremated remains dating to the late Bronze Age and Iron Age in the East Alpine region, assessing the impact of increasing contact between urbanised Mediterranean civilisations and the 'barbarian' societies of temperate Europe. Evidence of changing funerary practice, population demography and patterns of health can reveal both social and cultural implications of this dynamic period. Here we examine the impact through population and individual level approaches, investigating broad changes in funerary archaeology.

### **Tracking Mobility and Population Heterogeneity amongst Inhumed and Cremated Remains from Early Iron Age Europe Using Stable Isotopes**

**Hannah Koon** (University of Bradford, Bradford), **Rebecca Nicholls** (University of Bradford, Bradford)

This research falls within the theme 'Death and the body' which forms part of the HERA-funded ENTRANS Project, examining Iron Age cultural encounters in south-east Europe and the East Alpine region. The paper will present preliminary results of the isotopic analyses of bones and teeth from funerary assemblages in Croatia and Slovenia dating to Late Bronze and early Iron Age. Strontium and oxygen isotopes will be used to investigate the evidence for mobility and population heterogeneity; a critical factor in the analysis of cultural encounters. The data from stable carbon and nitrogen isotopes will allow for further interpretation of the diet, health, and both individual and group identity of different assemblages. The isotopic analyses will be closely integrated with the osteological analysis presented elsewhere in this session (Buckberry and Nicholls). The funeral assemblages under study are mostly (although not wholly) comprised of cremated remains, which adds an extra complexity to the analyses, thus this paper will also address the issues of conducting isotopic research on heat treated skeletal material.

## **Body Modifications and Social Identity among Iron Age Population of the Trans-Urals and Western Siberia**

**Svetlana Sharapova** (Institute of History and Archaeology, Urals Branch of the Russian Academy of Sciences, Ekaterinburg)

Attempts at explanation in archaeology, with the intention to recognize groups of people known from archaeological sites are always in the scope of research interests. This topic is closely related to the study of identity. Iron Age peoples of the temperate Eurasia were for the most part non-literate. In such societies personal appearance, including head deformation and varieties of tattoos, combination of weaponry and jewellery are among non-verbal media that offer possibilities in which the individual can create and express identity. At the same time, while various expressions of status and wealth were appearing among the elite, there is an assumption that identities can be both personal and communal, ascribed and achieved, manipulated and feigned. Body modification can be an overt stylistic display, pathology or can be used to identify dietary choices, activity patterns on the human skeleton. Much recent work on bioarchaeology is using kinds of data to look at individual experiences in the context of larger social issues. This paper describes the correlation of archaeological models and anthropological data as well as contributes to general scholarship concerning the Sargat and social identity by providing new bioarchaeological and contextual information on skull deformation, cranial trauma and non-metric osteological observations.

## **Celts and Rhaetians in the Middle-Eastern Alpine Region during the Iron Age: A Multidisciplinary Research**

**Simona Marchesini** (Alteritas, Verona), **Roncador Rosa** (Alteritas, Verona)

Recent archaeological research in the Middle-Eastern Alpine region reveals a Celtic presence during the Iron Age. La Tène type weapons, ornaments and artistic products found in the “Fritzens-Sanzeno Culture” point out the complex net of contacts established between the Celts and the local population, the Raeti. Nevertheless it is not clear to what kind of relationship these objects refer: cultural influence, peoples movement, commercial exchange, gifts among élites, intermarriage (see Tecchiati 1999; Marzatico 2001; Stöllner 2010, Roncador 2011, Roncador in print and Marchesini 2013). These objects have been found in sanctuaries, such as Campi Neri (Sanzeno), but also in settlements such as Sottopedonda, Settequerce and Vadena. In this case archaeologists found a necropolis with tombs belonging to Celtic warriors. Thanks to recent linguistic discoveries and to the revision of all Rhaetic inscriptions the linguistic trace of the Celtic presence in this region during the Second Iron Age was confirmed. Linguistically integrated Celtic gods- and personal names in Tesero, Cles, Campi Neri and Vadena allow the outline of a deeper, resident presence of Celts among the Raeti. Multidisciplinary research provides a more detailed drawing of a complex historical scenario and allows us to define cultural identities and their interaction.

## **Cultural Encounters and Fluid Identities in the Eastern Carpathian Basin in the 4th-3rd centuries BC**

**Aurel Rustoiu** (Institute of Archaeology and History of Art, Cluj-Napoca), **Sandor Berecki** (Mures County Museum, Targu Mures)

The eastern part of the Carpathian Basin (eastern Hungary and western Romania) experienced a process of colonization in successive stages during the second half of the 4th century and at the beginning of the 3rd century BC. The colonist groups came from central - western European regions to the east. Their movements are documented by the presence of some cemeteries displaying characteristic elements of the funerary rite, ritual and inventory. The appearance of some new communities characterised by the cultural amalgamation of the locals with the newcomers is a result of this colonization. The manner in which these parties interacted was different from one community to another, so a single cultural model cannot be identified across the entire region. The paper aims to identify the manner in which new individual and collective identities were constructed and expressed at communal and individual level, and their degree of fluidity in particular circumstances. The analysis will take into consideration some representative cemeteries from the region (Muhi, F<sub>nt</sub>\_nele and Remetea Mare). This work is supported by a grant of the Romanian Ministry of Education, CNCS - UEFISCDI, project number PN-II-RU-PD-2012-3 - 0316.

## **Iron Age Round-Houses in the Carpathian Basin**

**Szabolcs Czifra** (Hungarian National Museum National Heritage Protection Center, Budapest), **Lőrinc Timár** (Institute of Archaeological Sciences Eötvös Loránd University, Budapest)

Iron Age Europe's architecture is traditionally divided in respect of design: rounded houses are located on the Atlantic coastline, while the rectangular ones occur on the continental regions. The rectangular sunken floor buildings of the Carpathian Basin seem to have fitted well in to this schema until now, but a recent large scale excavation in North East Hungary has challenged this simplistic picture. An open lowland hamlet has been revealed in the specific sandy sub-region of the Great Hungarian Plain with several sunken floor, rounded features. Round, oval and irregular pits were also unearthed. Although round buildings represent a special, foreign architectural tradition in the prehistoric Carpathian Basin, the ceramic material is typical for the Middle Iron Age so called Alföld (or Vekerzug) group. Moreover some vessels clearly show local Late Bronze Age tradition. According to the archaeological literature many reasons could influence the adoption of the



round-houses, and changes in the architectural style might have been related to social identity. The aim of this study is to analyse the recently discovered rounded buildings from a complex viewpoint, which – beside the generally known studies – relies on both North Pontic Iron Age settlements and ethnological parallels.

### **From the Farm to the Hillfort: What Happens to a Celt when a Greek Settles at His Door?**

**Loup Bernard** (Université de Strasbourg, Strasbourg)

This paper will summarize new and older excavations around the Phocian colony of Massalia, focusing on the first period where Greek and “native” Celtic populations met, i.e. the 6th century BC. If the city itself has only delivered few archaeological remains from this time, the surrounding areas are highly interesting to our subject. Several settlement sites witness the transition from small farming wooden houses to the first fortified villages built with stones and earth architecture. This transition impacts also the use of the land, at a time where colonists deforest the area in order to implant vineyards in the *chôra*. Archaeological evidence and antique authors indicate that the local populations were part of those evolutions, working for the new city, helping building it and housing nearby. Finally, the material culture of the local farms and hillforts reflect these evolutions and the transition to a more globalised economy in the Iron Age.

### **An Iron Age Business School? Trade and Exchange in the North-West of the Mediterranean World (Vth-1st cent. BC)**

**Alexis Gorgues** (University of Bordeaux III, Pessac)

Western Mediterranean Iron Age societies are often considered as « peripherals » in relation with the Greek, Phoenico-punic or Italic areas. Thus, all activity connecting those “peripheral” societies with the “central” ones are thought to have been carried according to norms issued in Athens, Carthago or Rome. Among all these activities, trading may be the main one, and is a traditional focus for Iron Age archaeologists working in eastern Spain or Mediterranean France. They use to put a great emphasis on the emergence of a category of native merchants having learned their job by some sort of progressive contamination by Greeks or Punic traders based on local colonies as Marseilles, Agde, Emporion or Ebusus. As a matter of fact, this process is believed to be deep enough to have led to the spreading of the Iberian language, interpreted as vehicular, from what is nowadays south-east Spain to the southern part of the Languedoc, in France. This idea relies on material evidence that we would like here to discuss, in order to show that in fact, the trading norms in use in this region were indigenous. This idea brings to another point: how could work in this context a foreign trader?

### **Beyond Anomalies: Advanced Geophysical and Geochemical Techniques for Studying Cultural Patterns in the European Iron-Age**

**Peter Turner** (University of Bradford, Bradford), **Branko Mušić** (University of Ljubljana, Ljubljana)

ENTRANS will examine the nature and impact of cultural encounters in the highly fluid social world of the European Iron Age. Focussing on encounters between Mediterranean and temperate European societies, the project examines zones of primary contact where material culture, bodily treatments and patterns of landscape inhabitation provide new insights into the construction and negotiation of identity. The East Alpine region, including inter alia parts of northern Italy, Slovenia, Croatia and Austria, formed a major locus for cultural encounters throughout much of pre- and proto-history. Building upon on existing fieldwork, part of this project involves the use of both established and novel geophysical and geochemical techniques to understand settlement patterns and metalworking behaviour at a number of nodal sites in the region. These techniques hold out the possibility of developing a detailed understanding of landscape use across entire sites, providing crucial information for understanding local identities. This paper presents a discussion of both previous work in the region by project partners, preliminary results from a number of sites, and a road map indicating the enhanced deliverables that result from the use of novel in this research area.

### **Geophysical 2D Models and Geochemical Mapping for Revealing Archaeological Features and Activity Areas**

**Branko Mušić** (University of Ljubljana, Ljubljana), **Matija Črešnar** (University of Ljubljana, Ljubljana), **Hrvoje Potrebica** (University of Zagreb, Zagreb), **Igor Medarić** (University of Ljubljana, Ljubljana), **Matjaž Mori** (University of Ljubljana, Ljubljana), **Katrijn Dirix** (University of Leuven, Leuven), **Nina Zupancic** (University of Ljubljana, Ljubljana), **Matej Dolenec** (University of Ljubljana, Ljubljana)

Deterministic manner of interpretation in archaeological geophysics, which is a common approach in archaeology is slowly substituted and complemented by some quantitative analyses. Determining physical parameters and geometry of archaeological features is becoming more important also in archaeological geophysics. Non-homogeneity and anisotropy of investigated medium on archaeological sites and relatively small volume of archaeological targets is testing effect of these algorithms in edge conditions. Special accent is addressed to several attributes of diverse natural settings and their impact on recognition and evaluation of specific archaeological targets. Selected key studies from different karst landscapes associated with flysch bedrock, sites on different metamorphic rocks and loess substratum will be represented. Diverse natural

settings and predominantly weak signal to noise ratio requires multi-method approach. Therefore ground penetrating radar (GPR), resistivity, magnetic and low frequency electromagnetic (EM) methods were used to different extent. Besides the quantitative description of selected geophysical targets obtained from 2D archaeo-physical models an extra dimension to the functional information was extracted from multivariate statistics on geochemical analyses for some complex and most prominent sites within on-going projects.

## POSTERS

### **Invasion of the Wandals - Cultural Changes in Roman Period in Upper Tisza Region. Archaeological and Historical Perspective**

**Jan Bulas** (Jagiellonian University, Krakow)

Presentation illustrates effects of researches that investigates cultural contribution of population of the Przeworsk culture in Upper Tisza Region in the end of second century A.D. Any evaluation of archaeological material excavated within the Carpathian Basin poses an interpretative problem, as it is found in a very differentiated cultural background. Archaeological material of the Przeworsk culture found in Upper Tisza region is connected with the event described by roman historians - invasion of Wandals in time of Marcomannic Wars. Archaeological sources reveal a very complex picture of those events. The arrival of new ethnic groups, both of Germanic and Sarmatian origins into the preexisting local background resulted in the creation of new cultural entities. This phenomenon is difficult to understand as the archaeological material assigned to these peoples is buried in the soils of four different modern countries - Slovakia, Ukraine, Hungary and Romania. My researches focuses on chronological division of archaeological finds assigned to Hasdingian Vandals, that can reveal the process of migration, and adaptation of this tribe in Upper Tisza region. Moreover, it also investigates how the Germanic tribes influenced and adapted local cultural package within Carpathian Basin in the last decades of second century A.D.

### **Importance of Personal Decorative Items in Context of the Small Social Units: The Appearance and the Development of Boat-form Fibula in Thrace**

**Stanislav Iliev** (Regional Museum of History - Haskovo, Haskovo)

Between the 8th and 7th century BC, a relatively large area, between Central Europe and Anatolia has witnessed the emergence of so-called Boat form fibula. These small items illustrated the dynamic of contacts and their variations during the Early Iron Age period. By the middle of the 8th century BC refers the appearance of type in Thrace. In terms of its geographical position, Thrace occupies important area between Central Europe, Greece and Asia Minor. Although its culture is more or less perceived as homogeneous, it has its regional variants, which is obvious. In this context Thrace can be perceived as an interesting part of Early Iron Age communication network. The purpose of this work is to examine the issues surrounding the emergence and development of the Boat-form fibula in Thrace, and pay attention to technological and typological transformation of these objects fall into the context of local communities. Concerning appearance of the type in local soil, here are explore the opportunity for most probable Northwest origin of the local variant. Special attention is paid to the mechanisms of perception and adaptation of this type of personal decorative items, to aesthetic needs and technological capabilities of small social units in Thrace.

### **Feeding an Emporion: Gastronomies and Identities in Empúries, North Catalonia (5th-4th centuries BC)**

**Ana Delgado** (Universitat Pompeu Fabra, Barcelona), **Meritxell Ferrer** (Stanford University, Stanford)

Material cultures and daily practices play a central role in the invention and (re)production of identities in the context of historical experiences of migration and displacement. Following this premise the aim of this poster is to analyze daily practices and materialities, specially those ones related to food, in the construction, manipulation and negotiation of social identities and power relations in one specific colonial context as is Neápolis of Empúries. To do this study we present and analyze the culinary traditions of the inhabitants of this port of trade between 450 and 375 B.C. through the study of cookware and cooking utensils found in different household contexts and domestic dumps.



### **T01S010 - ARCHAEOLOGY ACROSS PAST AND PRESENT BORDERS: FRAGMENTATION, TRANSFORMATION AND CONNECTIVITY IN THE NORTH AEGEAN AND THE BALKANS DURING THE LATE BRONZE AND EARLY IRON AGE**

**Organizers: Stefanos Gimatzidis** (Institute of Oriental and European Archaeology, Academy of Science, Vienna), **Magda Pieniazek** (German Archaeological Institute, Istanbul), **D. Sila Votruba** (Koç University, Istanbul)

Modern political borders still divide European archaeology and intercept research especially with regard to interregional relations. This is particularly evident in Southeastern Europe, where archaeological interaction among neighbouring countries/areas such as northern Greece, western Turkey, Bulgaria, the F.Y.R. of Macedonia and Albania is practically inactive.

This session will critically examine the cultural diversity in this region as well as its transcultural connections during periods of major transformations - The Late Bronze and Early Iron Ages. The focus will be on the following topics: • Reception of the past within the local perspectives of modern nation states: New trends in archaeological theory versus traditional methods of interpretation of changes and continuities in the material culture (migrations and ethnic continuities in the service of modern ethnogeneses, etc). • The potential of domestic or public architecture, burial rites or single artifact groups towards the definition of identities. • North Aegean and the central Balkans were often regarded as the “periphery” or “backwater” of Anatolian and Aegean cultures and treated as passive recipients of imported ideas and wares. What is the context and materiality of these imports? Were they integrated into the local material culture or remained alien? Was their initial function and meaning preserved or transformed? Was their purpose primarily symbolic or practical? How did it change through the time? Who were the agents responsible for the mobility of wares and ideas? What defines local, regional and interregional? And finally – what types of objects, technologies or ideas were excluded from this cultural exchange and why?

## ORAL PRESENTATIONS

### **Claiming the Past, Conquering the Future: Archaeological Narratives in Northern Greece and Western Turkey**

**Stefanos Gimatzidis** (Austrian Academy of Sciences, Vienna), **D. Sila Votrubá** (Koç University, Istanbul)

This paper will try to highlight the socio-political background, on which archaeological narratives were constructed in Western Turkey and Northern Greece and detect echoes of recent history on interpretation of regional archaeological record. The focus will be on migrationist theories and the obsession with tribal or colonial expansions, cultural hegemonies and processes of ethnogeneses in regional archaeology. We will challenge material-culturalist views that link certain categories of artefacts or religious, burial and other ideologies with specific ethnic groups and attempt an analysis of their socio-political background. Last but not least we will discuss how policies and education have created and razed conceptual borders in this region. It will also be emphasized how distorting the concept of continuity or a break of regional identity, based on material culture, can unite or divide a group of people from the past.

### **Too Many Small Worlds. “The Minoan Involvement in Northern Aegean and Its Southern Counterparts”**

**Luca Girella** (Università Telematica Internazionale Uninettuno, Rome)

The paper focuses on the progressive interaction of the NE Aegean islands with the southern Aegean ‘world’ (mainly the Cretan one) during the MBA and early LBA, known otherwise through the label of Minoanisation. In particular, the paper will try to show: (a) how the concept of insularity for this area, as a result of the interaction with the nearby continental masses and the ‘foreign worlds’, was differently shaped over several centuries and led to construction of different ‘histories’; (b) how, compared to other areas of the Aegean (such as the Dodecanese and the Cyclades), the interaction with the Minoan world produced a rather different and less compelling picture, which however cannot be reduced, as was often previously the case, to an image of isolation. By commenting mostly upon pottery production, distribution, and consumption, it will be argued how in the NE Aegean the active selection, adaptation and incorporation of technological innovations and foreign material culture features into local landscapes, was a process varying both geographically and chronologically. It will be further attempted to show that the development along the line from (1) an imitation to (2) a hybrid creation, was not homogeneous and actively responded to cultural preferences and social strategies.

### **LBA Connectivity and Group Identity in the NW Anatolia: Kaikos Valley Restudied**

**Peter Pavúk** (Institute of Classical Archaeology, Charles University, Prague)

The aim of the paper will be twofold. A recent survey in the Kaikos valley run by Barbara Horejs has yielded important new evidence about the LBA in the area, which will be presented first. Running then in ever wider circles, it will be attempted to place the valley in a broader West Anatolian cultural context. In line with the theme of the session, supraregional aspects will also be discussed. One cannot really write history based on ceramic evidence only, but in combination with the emerging knowledge of changing settlement patterns throughout the 2nd Mill. BC, and the little that we know from Hittite documents, an interesting picture nevertheless emerges.

### **The North Aegean and Its Neighbours: Paths of Communication**

**Magda Pieniazek** (German Archaeological Institute, Istanbul)

The North Aegean is an area of very specific geographical localization; it seems to connect North and West Anatolia, the Aegean and the Balkans. However, the extent to which the cultural groups from these neighboring regions communicated with one another varied from one time period to another and depended on many factors. The intensity and direction of the exchange of goods was related to the availability of transportation routes, geopolitical situation, fashion, tradition, cultural identity and sociopolitical organization. In my presentation I would like to analyze the patterns of circulation of so

called imports, imitations and local products inspired by foreign goods during 2nd Millennium BC. Despite obvious difficulties connected with the archaeological visibility of such objects as well as difficulties in the proper interpretation of their context, it is in some cases possible to come closer to an understanding of their function and the process of their integration within local contexts. Based on finds from Troy, Besik Tepe and other sites from the study region, I will highlight some aspects of regional and interregional paths of communication.

### **Cultural Passivity in Bronze and Iron Age Western Anatolia and Central Macedonia: Some Reflections on Past and Future Research**

**Rik Vaessen** (Department of Archaeology, University of Sheffield, Sheffield)

In recent years, scholars have, under the influence of postcolonial studies, increasingly come to rethink the role of 'peripheral' regions in the dynamics of cultural interaction and the formation of identities in the past. This important shift should, however, not be conceived of as a break with past scholarship; rather, by asking new questions and raising different issues, we merely move historical enquiry into a different direction. Indeed, the writing of history is not a straight line from darkness to illumination. It has followed certain paths, while abandoning others; it has imposed certain ways of looking at the past, while pushing aside others; it has accepted certain metahistories, while eschewing others. Therefore, in moving forward, we should not dismiss past scholarship as simply redundant, but rather reflect on the practice and context of historical writing. Consequently, this paper examines the contexts and backgrounds of archaeological research in Western Anatolia and Central Macedonia during the late 19th and early 20th centuries in an attempt to provide an intellectual basis for a theoretical and empirical re-appraisal of the (assumed) cultural passivity of these (and other) peripheral regions during the Bronze and Iron Ages in this session.

### **From Pottery to Ethnicity. Archeological Record and Creation of Archeological Groups in Central and Western Balkan**

**Mario Gavranović** (Independent researcher, Berlin)

The prevailing cultural interpretation of the Late Bronze and Early Iron Age in central and western Balkans is still based on cultural-historical approach, introduced by G. Kossina in the early decades of the past century. In this sense, prehistoric societies were explained as cultural-ethnic groups within certain territory and with overriding collective identity expressed through specific artifacts and features (jewelry and weaponry, decoration style of ceramic, funeral rites etc.). Potential risks of equaling material culture and, for the prehistory absolutely not verifiable, terms like "ethnicity", "tribe" or "people" seemed to find no proper echo in the archeological discourse of South East Europe. The paper will present examples of grave finds from the respective region, which are not conforming with the unilateral model of prehistoric communities as groups with however determined collective identity. Rather, they reveal complex and multilayer nature of prehistoric relationships influenced by various factors (trade relationship, matrimonial connections).

### **The LBA / EIA Transition in the Korçë Basin (SE-Albania) and the Modern Perception of the Emergence of Illyrian Culture**

**Tobias Krapf** (Universität Basel, Basel)

The LBA/EIA transition is a crucial period in many regions of SE Europe, partially in terms of cultural change but equally as the point when the emergence of the historic tribes has been sought in the perspective of ethnogenesis. In Albania, several cultural elements of this period have been referred to as typical Illyrian. Focus of this paper is the Korçë basin, which played, despite its marginal position in the modern state, a major role in Albanian prehistoric archaeology. The results of the French-Albanian mission and especially the pottery constitute an ideal starting point for reviewing the material culture of the region and for reconsidering some of the phenomena acknowledged to be specifically Illyrian. A more precise relative chronology linked to the Central Macedonian stratigraphies and a comparative approach allow to reassess the local cultural developments in their interregional setting. External influences and imports were subject to selection: some appear almost contemporarily with Macedonia, whereas others were integrated in the local ceramic repertoire with significant delay or other features were never adopted. Overall, a distinct local culture can be defined, yet its exact geographical delimitation is hindered by modern borders as well as research gaps in the immediate neighbouring regions.

### **Bronze Age and the Embedded "Macedonian Question"**

**Maja Gori** (Johannes Gutenberg-Universität Mainz, Ruprecht-Karls Universität Heidelberg, Mainz)

This paper wants to explore the relation between our reconstruction of past cultural dynamics and the different research standards and methodological approaches to Bronze Age in use in geographic Macedonia. The detachment of Aegean and Balkan archaeologies is caused both by trends in archaeological theory and political circumstances. As consequence, definitions of cultures in use were often forced into artificial borders influenced by the modern ones, reflecting an approach to

cultural identity which was (and still is) strongly influenced by modern nation states and present national identities. This paper will discuss Middle and Late Bronze Age pottery production in geographic Macedonia focusing on two sites, Sovjan (Albania) and Sveta Nedela (Republic of Macedonia - FYROM), showing that the data inferred from pottery distribution patterns are significantly influenced by political factors and theoretical approaches rather than representing real cultural entities or real cultural borders.

### **Constructions of Identities – Paeonians in the Early Iron Age (8th–6th BCE)**

**Daniela Heilmann** (Ludwig-Maximilians-Universität Munich, Munich)

The area along the river Vardar in Central and North Macedonia and the Bregalnica in Northeastern Macedonia (FYROM) has been at the latest associated with a certain Paeonian culture by N.G.L. Hammond and considered as such ever since. Combining historical and archaeological sources he tried to prove the existence of Paeonian tribes on a territory around the river Axios/Vardar from the Bronze Age until the establishment of the Roman Province Macedonia in the 2nd ct. BC. Rich archaeological material from the Early Iron Age in this area is known particularly from excavated cemeteries since the 1950s in the Bregalnica Valley and the Lower Vardar Valley. On the basis of this evaluable material cultural groups like the “Gevgelija-group” or the “Stip-group” have been proposed. Since a Paeonian culture is assumed also for the Early Iron Age in Macedonia, archaeological finds of this time and area are assigned to Paeonian tribes - suggesting a perception of an apparently homogeneous culture with shared beliefs and values. The aim of this paper is to question whether homogeneity or diversity in material culture can be an evidence for the distinction of ethnic groups or the construction of new ones in the past.

### **Plants in Iron Age Culinary Practice in SE Europe: Continuities and Discontinuities in the Archaeobotanical Record of Greece and Bulgaria**

**Soultana Maria Valamoti** (Aristotle University of Thessaloniki, Thessaloniki), **Eugenia Gkatzogia** (Aristotle University of Thessaloniki, Thessaloniki), **Ivanka Slavova** (Sofia University “Sv. Kliment Ohridski”, Sofia), **Elena Marinova** (University of Leuven, Leuven)

This paper focuses on plant remains from Iron Age contexts spanning the end of the 2nd millennium BC up to the end of the 6th century BC in northern Greece and Bulgaria. The sites are Karabournaki, Toumba Thessalonikis and Polichni in central Macedonia in northern Greece and the sites Malenovo, Dolno Cherkovishte and Kapitan Andreevo in the region of South East Bulgaria. A variety of cereals and pulses, already cultivated since neolithic and Bronze Age times are identified as potential culinary ingredients in both regions, yet the list of crops from northern Greece includes a wider diversity than that from the Bulgarian sites especially as regards fruit remains. Continuities and discontinuities of plant ingredients are discussed in relation to potential taphonomic biases. This new evidence from the region indicates that during the Iron Age this part of southeastern Europe shares common traditions in terms of the plant species consumed with some differences already pointed out for the Late Bronze Age.

### **Mortuary Variability - Social Complexity on Iron Age Central Macedonia**

**Konstantoula Chavela** (Greek Ministry of Culture, 36th Ephorate, Mesologgi)

During the EIA a remarkable variety of burial practices is testified in Central Macedonia. In the past such a fact would be interpreted as a result of the coexistence of different ethnic groups. However, since the data of material culture, show a relative homogeneity, as reflected both in grave goods and the typology of tombs, this explanation should be excluded. The distribution of certain local characteristics and the diversity of the EIA cemeteries in central Macedonia should be considered as a result of social – political dynamics that developed in the region during this critical time combined with the interaction of different cultural elements from south and north. In the EIA there a wide typological diversity of tombs is seen, which is gradually replaced by the homogeneity of the advanced phases occurring throughout Macedonia. Grave goods present a similar image, as quality and diversity give their place to homogeneity and simplicity. Taking into account the data from the settlements in Central Macedonia it seems that since the LBA and the EIA, a kind of regional hierarchical system where some of the settlements had higher and some lower position exists. This complexity should be considered as a reflection of the typological diversity of the cemeteries. Also the coexistence, in the same region, of cemeteries with slight chronological difference but with a clear typological differentiation, could be considered indicative of the position held by each local community in the hierarchical network.

### **Ancient and Modern Identities in Mortuary Practice of Early Iron Age Macedonia**

**Yannis Karliambas** (Greek Ministry of Culture, 16th Ephorate, Thessaloniki)

In the last decades a growing interest in the research of Early Iron Age Macedonia has been noted. As a consequence a large number of new archaeological sites have been brought to light. This paper will examine two of them as case studies in an effort to provide global insight into social and political factors that define method and approach of archaeological



interpretation in Northern Greece. The first site to be examined is the flat necropolis of Makrygialos in Pieria on the west coast of Thermaikos gulf and the second is the inland tumulus necropolis of Tzamala at the foot of the mountain Vermion in Imathia. The distance between the two sites is about 35 km and there are significant differences in the landscape. Following an effort to reconstruct the burial practices of the two distant communities, an analysis of the variability in burial practice and its social meaning will be undertaken. This evidence will be set in the more general frame of regional archaeological imagination and in contrast to certain ethnogenetic theories that derive their argumentation for the early history of Macedonia from mortuary material culture.

### **The Edge of an Era: Changing Aspects in the Southeast Balkans towards the End of the 2nd millennium BCE** **Denitsa Nenova** (University College London, London)

The southeast corner of the Balkans, commonly known as Thrace in an archaeological context, is a challenging area to study. Its partition between Greece, Bulgaria and Turkey and the repeated amendments to borders throughout the 20th c. has constrained the potential for research. Moreover, there has been a tendentious desire to associate the Thracian Bronze Age with that of either Anatolia or the South Aegean that has impeded a thorough understanding of the local particularities. In fact, there are a limited number of imported finds dating to the late 2nd millennium BCE. This and the discrepancy between the character of the indigenous culture and that from the south, according to pottery and settlement patterns, suggest an interruption in communication between these regions. The near-complete absence of sites in eastern Thrace and on the western Black Sea coast implies a certain level of depopulation; a possible environmental crisis, related to rising sea levels specific to that period, cannot be excluded. Furthermore, the collapse of social systems in the south echoed changes in the social configuration within Thrace. As a result, complex patterns of intra-regional diversity and interaction seem to have compensated for Thrace's isolation in the end of the Bronze Age.

### **Division or Unification? The Study of the Late Bronze Age Societies in the Present-Day Bulgarian Lands and the Concept of the Archaeological Cultures**

**Tanya Dzhanezova** (St Cyril and St Methodius University, Sofia)

Traditionally, the LBA cultural development and social dynamics in the specified territory has always been studied according to the concept of the archaeological cultures. The present paper examines the variable views about the characteristics and the range of the so-called archaeological cultures, cultural phenomena, cultural influence and/or common style reflected by material culture. Focused on the territories in northern and southern Bulgaria, it challenges the grounds for such definitions, analyses the approaches for cultural characterizations and compares the variable cultural and chronological denotations established in certain Balkan regions. Special attention is paid to the territories located near the state borders, where the differences between the variable scientific approaches and adopted definitions result in highest level of disparities. Another aspect - the mechanical consideration of certain areas as belonging to the range of archaeological cultures, previously established in neighbour countries areas, will also be examined in details.

### **Settlements or Sanctuaries? Interpretational Dilemma Concerning 2-1st millennium BC Sites in Bulgaria** **Elena Bozhinova** (Regional Archaeological Museum, Plovdiv)

This paper focuses on a recent interpretational trend in Bulgarian Bronze and Iron Age archaeology. Several types of sites from the 2nd and 1st millennia BC are often seen as places with predominantly cultic functions and called peak sanctuaries or pit sanctuaries. The fact that some of these sites were initially interpreted as settlements in Bulgaria, and similar sites were not recognized as cult places by researchers from different research traditions in Greece, Turkey and Romania, demonstrates the need for re-consideration of this topic. The current paper presents results of recent excavations at few sites in Bulgaria which prove that sites traditionally interpreted as sanctuaries functioned actually as fortified regional centers, unfortified settlements or metallurgical centers. These case studies reveal a complicated structure of a settlement with defensive, public, residential, industrial and other functions. The criteria for distinguishing a site as a sanctuary or a settlement are revised. Explanatory evidence is searched also in modern trends of Bulgarian archaeology. A simple comparative interregional study all over Southeastern Europe can be indicative of the narrow views established so far by regional studies and will shed new light on old problems.

### **Ada Tepe in the Context of the Problematics of the Raw Material Long-Distance Trade and the Eastern Balkans-Aegean Intra-Regional Contacts in the Late Bronze Age**

**Hristo Popov** (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia), **Krasimir Nikov** (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia)

In the last 5 years a gold mine, exploited during the Late Bronze age, was investigated in the Eastern Rhodopes. The absolute and relative dates of the archaeological site suggest operating over considerably extended period between the end of

the LSH I and the end of the LSH III C. This indicates that the production and distribution of Ada Tepe precious metal was organized and functioned for a long period of time. The information acquired in the Eastern Balkans during the last decades offer excellent opportunities for creation of a model, which includes these territories into the economic infrastructure of the Aegean and the Mycenaean world in the Late Bronze Age. In this context Ada Tepe poses many open problems.

### **Protocorinthian and Corinthian Ceramic Imports in Macedonia: Different People, Different Tastes?**

**Eleni Manakidou** (Department of Archaeology, School of History and Archaeology, Faculty of Philosophy, Aristotle University of Thessaloniki, Thessaloniki)

The meagre colonial activity of Corinth during the archaic period in the coastal areas of North Aegean, in contrast to the intensive early Corinthian presence in Northwestern Greece and Southern Italy, is juxtaposed with the considerable ceramic findings from Corinthian workshops brought to light in many Macedonian sites. These date from the last quarter of the 8th c. BC onwards, giving accurate but limited information on a still barely comprehensible exchange network during the archaic period. Protocorinthian painted vases belong to the most sophisticated groups of early archaic fine pottery. They were appreciated as such by foreign recipients since they bore particular symbolism and had obviously special function. Corinthian decorated vases circulated in much bigger quantities than any other Greek ceramic category before, increasing thus their consumption potential in the external market places. The aim of this paper is to explore frequency, variability (shapes, decoration, usage), and distribution patterns (settlements, cemeteries, sanctuaries) of various groups of Corinthian pottery (transport amphoras, cooking ware, painted vases) in a certain chronological and geographical frame with indirect or any relations to their place of origin and to focus on the materiality of this imported commodity and its variable function in domestic and funerary contexts in Macedonia.

### **Strangers in a Strange Land: Two Soldiers' Graffiti from Ancient Thermi**

**Eurydice Kefalidou** (Aristotle University of Thessaloniki National, Thessaloniki), **Ioannis Xydopoulos** (Kapodistrian University of Athens, Athens)

This paper discusses two unpublished, interesting terracotta fragments, from a roof tile and a vase respectively. They were both found in the settlement of ancient Thermi (modern Toumba in Thessaloniki) during the 1980's. Both show incised male figures with oriental dress and bear incised inscriptions (graffiti). The inscriptions are clear-cut, written in an unknown language (or, perhaps, languages); the letters include Greek, Aramaic and Phoenician characters, together with some curious symbols which have not yet been identified. We present the excavation data and the possible chronology of both fragments, one of which has been found in a dug-out structure, typical of the Iron Age-Archaic periods in the areas around the Thermaic Gulf. The male figures are compared to the reliefs from Persepolis and other similar artefacts. Also, an effort is made to identify the ethnic character of the persons who wrote these inscriptions, an effort mainly focused on the various nations who followed Xerxes' army during his march in Greece (480 BC). According to Herodotus, the vast army had camped at Thermi, a fact closely linked with the finds under examination.

### **Interconnectivity in the North Aegean, Thracian Chersones and Propontis during the Archaic and Early Classic Period**

**Mustafa H. Sayar** (Istanbul University, Ancient History, Istanbul)

The aim of this paper is to provide a platform for theoretical dialogue on issues relating to identity in the North Aegean, Thracian Chersones and Propontis region from the Early Archaic Period to the early Classic period, and to challenge the traditional cultural-materialist notions employed as political discourse through the new interpretation of the historical evidence.

### **The Protohistorical Societies of South-Eastern Europe: An Impossible Synthesis?**

**Alexandre Baralis** (Department of Greek and Roman Antiquities, Louvre Museum, Paris)

Caught between the great interest aroused by the beginning of the Neolithic in the Balkan Peninsula and the archaeological testimony of the Greek colonies settled along the coastal areas, the protohistoric societies of South-Eastern Europe had not received the same attention from the Western scholars. Only the spread of the national archaeological institutions, after the dismantling of the Ottoman administration, provided the requested framework for the beginning of the first researches. Far from resulting to the application of normative archaeological methodology, based around the typological and spatial classification of the artefacts, the protohistorical legacy received a different treatment from one country to another. This last varied from a relative lack of excavations to its political use at the service of the local identities. Paradoxically, Ancient Greece constituted a common point of reference. The protohistorical societies were then regarded only through the prism of the ancient Thrace, resulting in their idealization or on the contrary in their negation. Nowadays, despite the recent opening of the borders, the protohistorical past of the South-Eastern Europe continue to constitute a puzzle where all the pieces don't fit again together.

## First Encounters and Further Developments: Greeks Meeting Thracians on the Western Pontic Coast

**Margarit Damyanov** (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia)

The Greek settlers that founded colonies on the western shores of the Black Sea in the 7th and early 6th c. BC, created a contact zone with Early Iron Age Thrace. Local circumstances varied, creating conditions for different scenarios, from flat Dobrudzha to the north down to wooded Strandzha Mountain to the south. There is practically no evidence to illustrate the first encounters - no written sources and very little archaeology. The chronology of the Early Iron Age cultures in the coastal areas is also problematic. Demography is the most crucially unknown element of the equation: how many Greeks and how many Thracians (if any)? However, in the decades (and centuries) after the foundations phenomena emerged that could shed light on the process. They seem not to reveal confrontation between colonists and natives, but a cohabitation (and cooperation?). At least in some areas, the formation of the Greek poleis and their territories would have brought stability that attracted natives, creating a heterogeneous community. Then, this hybrid milieu would have facilitated penetration of goods, technologies and ideas deeper in the interior.

## Thracians and Greeks in the North Aegean

**Despoina Tsiafaki** ("Athena": Research & Innovation Center in Information, Communication & Knowledge Technologies, Xanthi)

The interest in the relation of Greeks with other people has a longstanding tradition. Various publications deal with the inhabitants of lands that attracted Greeks as traders or colonists. Skythians, Persians, and Thracians for example, appear as exotic people with significant presence in the Greek and in particular Athenian, art (e.g. iconography, drama). The Greek interest for North Aegean seems to go back in the early times. This area was inhabited mostly by Thracians, who are the focus here. The appearance of Thracians in Athenian iconography, drama, and historical sources is one aspect for the connectivity of the two people that are presented with great differences. The other aspect is the exploration of the Greek presence in the Thracian territories and the formation that it takes through place and time. Imports of movable objects as well as architectural remains provide a picture of their existence. Although, limited in comparison with the Greek material remains, the traces of the indigenous people in their own lands of the North Aegean can indicate the existing cultural diversity there. Taking under consideration the above, along with the change in the archaeological methodology for their understanding and interpretation, the current paper will explore the intercultural connections in this geographical region.



## T01S011 - THE LATE CHALCOLITHIC/EARLY BRONZE AGE TRANSITION IN ANATOLIA, SOUTHEAST AND EAST EUROPE. PROBLEMS OF DEFINITION, CORRELATION AND INTERACTION

**Organizers:** Jan-K. Bertram (Middle East Technical University, Ankara), **Stephan W. E. Blum** (Universität Tübingen, Tübingen), **Gülçin İlgezdi Bertram** (Ahi Evran University, Kırşehir)

The 4th millennium BC marks a period of remarkable cultural changes. In some regions the Late Chalcolithic cultures finished suddenly (e. g. Karanovo VI in Thrace), in other regions (especially in West- and Central Anatolia) the archaeological evidence seems to be underrepresented. The formation of Early Bronze Age Cultures starts later on, at around ca. 3200/3000 BC. According to chronological problems and limited sources, the process is still quite poorly understood and the correlation of European developments (e. g. Cernavoda, early Ezero, early Karaz, Maikop, etc.) with those in Anatolia is difficult to assess. Therefore this session addresses a wide range of aspects of the Late Chalcolithic/Early Bronze Age transition and its supraregional context: 1.) new excavations and stratigraphies for the 4th millennium BC; 2.) pottery chronology for the 4th millennium BC; 3.) supraregional connections and relations between Europe and Anatolia; 4.) the transition in to the Early Bronze Age and the formation of Early Bronze Age cultures at the end of the 4th millennium BC and in the early 3rd millennium BC: problems of change and continuity; 5.) new research on the economy (archaeozoological studies, metallurgy, etc.).

## ORAL PRESENTATIONS

### Cultural Entanglement in the Southern Caucasus in the Late Chalcolithic-Early Bronze Age Transition

**Antonio Sagona** (University of Melbourne, Melbourne), **Kakha Kakhiani** (Georgian National Museum, Tbilisi), **Claudia Sagona** (The University of Melbourne, Melbourne)

The second half of the fourth millennium BC in the southern Caucasus, once dimly understood, is emerging as a complex period social and cultural interconnectedness. Out of this milieu, involving relationships between local and intrusive communities emerged the Kura-Araxes horizon, a distinctive yet baffling complex. Enduring and geographically expansive, this conservative archaeological tradition stretched from the southern Caucasus through eastern Anatolia and northwestern Iran, to lands beyond. This paper investigates the origins of Kura-Araxes tradition, drawing on recent results from recent excavations at Chobartei, in southwestern Georgia, a collaborative project between the Georgian National Museum and the University of Melbourne. Chobartei, located in the Upper Kura Valley, is a highland site (1600 masl) composed of ter-



raced structures and burials built into a mountain-side. Its nuanced sequence and suite of radiocarbon dates derived from short-lived samples is providing a clear picture of the formative stages of the Kura-Araxes tradition.

### **Çamlıbel Tarlası in the Material World of 4th millennium BC Anatolia**

**Ulf-Dietrich Schoop** (University of Edinburgh, School of History, Classics and Archaeology, Edinburgh)

The short-lived village site of Çamlıbel Tarlası has produced a coherent corpus of material culture which is of considerable significance for the ill-understood region of north-central Anatolia. Despite its short existence and the principally homogeneous composition of its material culture, clear variation can be observed over time which will be evaluated for its economic, social and chronological significance. Turning to the larger regional setting, it will be argued – based on pottery and other classes of material culture – that the northern part of the Anatolian plateau is the arena of very complex, nested systems of material alignment. I will argue for the existence of large and stable “families” of material culture on a supra-regional scale which contrast strongly with extreme fragmentation on the regional level. Some thoughts will be offered how to understand the often conflicting affiliations assumed by the communities living in the north Anatolian mountains.

### **Differing Expression of Religious Motives as Impact of Supra Regional Connections in 4th and 3rd millennium BC**

**Barbara Horejs** (Institute for Oriental and European Archaeology, Vienna), **Christoph Schwall** (Institute for Oriental and European Archaeology, Vienna)

The time of the late 4th and the early 3rd millennium BC can be defined by numerous social and economic changes, which lead to the formation of complex societies with a differentiated social and political organization. During the last years evidence of this transitional period is increasing in Western Anatolia. The recent excavations at Çukuriçi Höyük at the central Aegean coast in Western Turkey provide us with new data of this period. The Late Chalcolithic period of this site is dated to the 2nd half of the 4th millennium BC and can be preliminary divided in two settlement phases. Current material studies figured out that Çukuriçi Höyük could be seen as part of a Western Anatolian interaction sphere with supra regional connections to provide the settlement among regional with exotic raw materials. Besides the economic interests, three different types of figurines from Late Chalcolithic and Early Bronze Age layers indicate connectivity not only in raw material distribution or artifact exchange systems, but also in religious spheres. Our contribution discuss these different kind of interactions as an important component in the process that finally lead to the formation of the Early Bronze Age centers in the beginning of 3rd millennium BC.

### **The Late Chalcolithic/Early Bronze Age Transition in Central Anatolia**

**Jan-K. Bertram** (Middle East Technical University, Ankara), **Gülçin İlgezdi Bertram** (Ahi Evran University, Kırşehir)

The 4th and early 3rd millennium BC in Central Anatolia is still a poorly understood period. A well-defined chronology is missing and there are only very few reference places. In 2006 fieldwork started in the Ankara Region, aiming to investigate the Late Chalcolithic and Early Bronze Age so as to get a detailed sequence for this timespan. We will show with this paper first results and discuss them in a supraregional context. The work takes place in co-operation with the Museum of Anatolian Civilizations (Ankara), Ahi Evran University (Kırşehir) and ODTÜ (Ankara).

### **Defining the Eastern Perspective – From Protoboleráz till the End of Baden Culture**

**Maja Kuzmanovic** (Independent researcher, Pula)

The appearance of the Baden culture is closely connected with a process of complex cultural change and a number of revolutionary technological innovation. Elements of material culture indicate a process of unification, which included local elements that emerged from preceding cultures as well as foreign influences from the Lower Danube and the Black Sea region. Since the second half of the fifth millennium BC, Steppe cultures from the Northern Black Sea regions were penetrating along the lower Danube, and out of the resulting turmoil the Cernavodă I culture eventually appeared. One of the Cernavodă I groups, Hotnitsa-Vodopada (contemporaneous with the Protoboleráz horizon), is one of the main Protocernavodă III elements and shares some characteristics with pottery finds from the early Boleráz/Baden culture. The Anatolian Black Sea littoral, according to the pottery evidence, had long interactions in the previous periods with the Lower Danube region and Central Anatolia. The aim of this presentation is to compare pottery finds from South-Eastern Europe and Anatolia with the Northern Aegean region during the time of classical and late Baden culture. The huge geographical distances, mixed context from old excavations, lack of archaeological evidence in some regions, and different chronological terminology will all be taken into consideration.

### **New Data of the Early Bronze Age Burial Customs in Northern Thrace: Excavations of Burial Mound from Early Bronze Age Nearby City of Merichlery, South East Bulgaria**

**Stanislav Iliev** (Regional Museum of History, Haskovo)

Between 26 September 2011 and 19 September 2012, under the leadership of the author, was excavated burial mound (Mound 1) located on the ridge of the hill on the left bank of Maritsa River, nearby city of Merichlery, Haskovo region.

Observations on the stratigraphy of the Mound 1 suggest at least three periods of accumulation. At different levels and stratigraphic positions in the tumulus was found burials of seven individuals. The revealed archaeological materials placed chronologically burials in the early stages of the Bronze Age. At present are available results of C14 analysis of bone material from three of the individuals which will be discussed in this work. Special attention deserves the Funeral 7 found under the small stone mound (cairn), located directly above the ancient terrain, in the central part of tumulus. The ritual by which was performed the funeral – cremation occurs rarely during the Bronze Age in Thrace. The purpose of this work is to provide new data for the funeral rite in the early phases of the Bronze Age in Thrace.

### **Better Your own Copper than another Man's Gold – Reassessing Tradition and Innovation in Late Chalcolithic/Early Bronze Age Central Anatolian Metal Consumption**

**Thomas Zimmermann** (Bilkent University, Ankara)

After an initial boom after the foundation of the Turkish Republic, archaeological research in Central Anatolia, targeting finds and features of the 4th and 3rd millennia BCE lost momentum in the past decades; that said, the temporal setting and interregional relations specifically of its northern extent is still controversial and poorly understood. Hope is now set on new excavations conducted in the vicinity of Corum, to shed further light on the above mentioned issues and specifically resolve the notorious chronological uncertainties. This paper, however, tries to tackle the still enigmatic dynamics of the late 4th/early 3rd millennium BCE from a metallographical perspective. Fresh spectrographic data for metal objects from various sites in (Northern) Central Anatolia is presented, to discuss various strings of indigenous processing and alloying traditions vis-a-vis possible external novelties. The recently-again-challenged chronological embedding of diagnostic assemblages from the Black Sea littoral and Central Anatolia proper will serve as a backdrop for further considerations on population dynamics and technology exchange in this transitional period.

### **Animal Exploitation during the Late Chalcolithic in the Ankara Region**

**Gülçin İlgezdi Bertram** (Ahi Evran University, Kırşehir)

Çayyolu Höyük is a small mound located in the city center of Ankara. It is excavated by the Museum of Anatolian Civilizations (Ankara) in co-operation with Ahi Evran University (Kırşehir) and ODTÜ (Ankara). The mound is found to consist of more than 8 meters of Chalcolithic and Early Bronze Age deposits. The excavation provided a very long cultural sequence until the transition to the Middle Bronze Age at around 2000 BC. Many building phases have been examined. In this presentation, first results of the analysis of faunal assemblage from the important Late Chalcolithic/Early Bronze Age occupation will be given, accompanied by diachronic changes in the use of animal exploitation through the stratigraphic sequence.

## **POSTER**

### **Final Chalcolithic Pottery from the Valley of Mesta, Southwest Bulgaria**

**Nadezhda Todorova** (Sofia University 'St. Kliment Ohridski', Sofia)

The poster presents new evidence concerning the final stages of the Chalcolithic period, which followed immediately after the 'classical' Late Chalcolithic cultures of the Balkans on the turn of the 5th millennium BC. The data comes from the recent excavations of two hilltop sites - Dolno Dryanovo and Ilinden-Klisura, located in the valley of Mesta in southwest Bulgaria, which yielded stratigraphic evidence and rich pottery material. The focus is put on the peculiarities of the ceramic assemblages and the co-existence of traditional Chalcolithic elements (e.g. graphite-painted decoration), and new, previously unknown pottery shapes and decorative styles. These novelties mark the very beginning of a transition and formation of a new pottery complex, which developed in the first half of the 4th mill. BC. In the same time, the new elements show a remarkable consistency over a wide territory. It seems that the emergence and consolidation of this uniformity is a consequence of the dynamic interactions that took place at the end of the Chalcolithic, encompassing the regions of the Balkans and the Aegean. In this context, we should point out the key-role of the Mesta valley as a natural route linking the Aegean with the interior of Thrace.



## **T01S012 - "THE OTHER" IN ACTION. THE BARBARIZATION OF ROME AND THE ROMANIZATION OF THE WORLD**

**Organizers:** **Alexander Rubel** (Institute of Archaeology, Iași), **Hans-Ulrich Voss** (Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main), **Roxana-Gabriela Curcă** (Alexandru Ioan Cuza University of Iași, Iași)

The history of the Roman Empire is the history of a complex process of integration, often labeled "Romanization". The receptiveness of Rome towards the Greeks and the incorporation of Greek culture into a Roman context are well-known

themes in classical studies and archaeology. With the concept of “the other in action” we argue that this receptiveness of Roman culture is the basis of and thus the key concept for the understanding of the empire and the provincial system. It is about Rome’s unique capability to creatively adapt elements of foreign cultures, of “the other”, within the framework of Roman rule and to make them part of an integration process, involving culture and especially religion. Such a theoretical approach will investigate “the other in action” in a multi-disciplinary way, from multiple angles, centered on the fields of ancient history, archaeology and linguistics, thus covering Roman Italy, Germany, Dacia, Greece and other regions of the Roman Empire in a comparative perspective, and dealing with issues like military organization, linguistics, numismatics, religion. The main question underlying this approach is not how the process of “becoming Roman” took place, but why it was possible to “become Roman” while still being Greek, Goth or Dacian.

## ORAL PRESENTATIONS

### **The Transformation of Religion in Iron Age to Roman Britain: New Research and the Fercan Project**

**Anthony King** (University of Winchester, Winchester), **Ralph Haeussler** (Trinity St David University of Wales, Carmarthen)

A new gazetteer of sites and inventory of inscriptions relating to religion in the interface between Iron Age and Roman Britain has given new insights into the changes that took place in the period 1st century BC to 2nd century AD. Changes in religious practice, both abandonment of old ritual and adoption of new ‘Roman’ conceptualizations of deities led to major transformations of everyday worship. This paper presents a synthesis of recent discoveries and research, highlighting Late Iron Age religious practice and the transition phase to the fully-developed ‘Romano-Celtic’ model that was in place by the 2nd century AD.

### **Romanizing Palmyra**

**Signe Krag** (University of Aarhus, Aarhus), **Andreas Kropp** (Nottingham University, Nottingham), **Tracey Long** (University of Aarhus, Aarhus), **Rubina Raja** (University of Aarhus, Aarhus), **Annette Højen Sørensen** (University of Aarhus, Aarhus)

The Palmyra Portrait Project tackles an array of questions dealing with the funerary as well as public portraiture of the Palmyrene citizens in one of the easternmost parts of the Roman Empire. The Palmyrenes lived at the crossroads of the great trade routes passing through the Syrian Desert. The city is known as the port of the desert - a melting pot of culture. In this melting pot Greek and Persian influences mingled with the Roman influenced honorary and funerary portraits within the Aramaic speaking world. The portraits of Palmyra are truly a corpus of material, which within the Palmyra Portrait Project, is being collected for the first time, revealing completely new aspects of local identities within the Roman world. In the proposed presentation we will analyze aspects of negotiations in the processes involved when Aramaic Palmyrenes became Roman. We will in particular look at how this was expressed within the realm of the dead and how their affiliation to the world of Romanized Palmyra with a twist of local and Hellenistic influences was expressed.

### **Colonization and Romanization in the Rural Milieu of Lower Moesia: The Case of Ulmetum**

**Lucrețiu Bîrlița** (“Alexandru Ioan Cuza” University of Iași, Iași), **Valentin Piftor** (“Alexandru Ioan Cuza” University of Iași, Iași)

The authors reevaluate the epigraphic evidence of the vicus Ulmetum in Lower Moesia, trying to establish, if possible, the origin of the colonists. Another important issues are the social and economic reasons of the colonists’ presence in Ulmetum. L. Bîrlița and V. Piftor analyze the inscriptions mentioning the community of cives Romani and Bessi consistentes and notice that the main economic branches could be agriculture and mining. In the final, the authors try to establish to which rural territory the vicus Ulmetum belongs.

### **Coin Finds in the Sites of Roman Dacia**

**Lucian Munteanu** (Institute of Archaeology, Romanian Academy, Iași Branch, Iași)

The study presents our intention to establish a pattern of the coin finds in the Roman sites of Dacia province. In order to accomplish it, we started by comparing the lists of the monetary findings in this area with those in other parts of the Roman Empire. The comparative analysis of numismatic data revealed numerous similarities between the province north of the Lower Danube and neighboring territories. The monetary circulation in the Dacian sites represents a part of a regional model that comprises the Empire’s Rhenish and Danubian provinces. Within this overall pattern there is a monetary pattern of the Dacian sites, whose features can be highlighted both in the civilian and military centers of the province. The particular behavior of Dacian sites occurs especially during the Severan dynasty, due to the unusual high percentage of copied

denarii, and in the time of Philippus Arabs, as a consequence of the local civic coinage minting. Unlike other western Roman provinces, in Dacia's case there are no outstanding differences between the coin finds within the civilian settlements and military camps, most likely due to the brief rule of the Romans north of the Danube.

### **The Romanization of Culinary Behaviour**

**Iulia Dumitrache** (Institute of Archaeology, Romanian Academy, Iași Branch, Iași)

Roman material culture, both literary and archaeological, prove that people living all over Roman world represented themselves as Romans, and food processing and consumption as elements of the material culture automatically reflects this common thought. A contextual archaeological approach is needed for understanding critically the consumption of some new food products, common within the Roman world, as olive oil or fish sauces. People who afforded to buy such stuff have surely done it. They entered all Roman provinces through the army and administration, they have been adopted by locals and they became part of the daily diet. Archaeological evidence shows a comparable consumption from Britain to Danube Delta; food as olive oil or fish sauces spread all over Europe as part of Roman living.

### **Dacia and Moesia Inferior: A Linguistic Contrastive Approach**

**Roxana-Gabriela Curcă** (Institute of Archaeology, Romanian Academy, Iași Branch, Iași)

This paper intend to highlight the most relevant linguistic phenomena occurring in the Latin inscriptions from Dacia and Moesia Inferior, in order to emphasize the common and different linguistic aspects from a phonological, morphological and lexical perspective.

### **Personal Piety and Public Religion in Dacia and Moesia Inferior. How Roman is Roman Religion?**

**Alexander Rubel** (Institute of Archaeology, Romanian Academy, Iași Branch, Iași)

The concept personal piety, first used in egyptology, seems to be a proper concept for a closer description of ancient polytheistic religions, in order to modify the dominant model of polis religion". In the case of Roman religion the predominant model is still the one of official "state cult" and harmful superstition, deteriorating the "real" and genuine Roman religion. This paper wants to show that personal piety is not at all to be confused with superstition and that individual and private aspects of religion were important in the polytheistic system that spread all over the empire and allowed very differentiated approaches for different groups of worshippers, thus integrating many ethnic groups during the process of Romanization."

### **Romanization Versus Barbarization? Manifestations of Interactions of Population on the Limes Romanus Territory in the Region of Middle Danube in Roman Period**

**Jana Hlavata** (Constantine the Philosopher University in Nitra, Nitra)

The aim of this paper is to give an overview on the state of research the issue. Moreover, characterize the yet known manifestations of interactions between provincial and barbaric population of the Roman period on the Middle Danube territory. On the examined area we can predict both, autochthonous domestic manifestations in barbaric region in the early Roman period (1st century) and „new, foreign culture“, incoming to the region (as a Roman provinces). Is it possible to discern these changes in material culture, food and other habits? Can be these changes indicated by different types of vessels and other types of material culture? Are we able to characterize the romanization or barbarization in archaeological material or we are dealing with ideological terms of import? The presented contribution is part of author's dissertation. Its purpose is to characterize, by comparing written (historical), archaeological and archaeobotanical sources manufacturing and processing of plant foods on part of the Limes Romanus territory (especially the Middle Danube territory). Specifically, clarify the nature of the interactions of the Romans and the Germans in their sphere of dietary habits and economic activities related to the production of plant food components.

### **Alexandria Troas, Goths and Gold Coins or how Roman Technologies Spread to the Barbarians**

**Aleksander Bursche** (Instytut Archeologii Uniwersytet Warszawski, Warsaw), **Kiril Myzgin** (V.N. Karazin Kharkiv National University, Kharkiv)

Since 1881 Cabinet des Medailles in Paris has had in its keeping a pierced gold coin of Gallienus struck with the die of Alexandria Troas. Only bronze coins were minted in Asia Minor at this time so this continued to challenge the most astute numismatic minds such as E. Babelon. Currently three gold coins of this type are known. One of them was discovered in north-western Ukraine. In AD 263 Alexandria Troas was plundered by Gothic troops. No doubt, its mint also fell into barbarian hands, complete with bronze coin dies and possibly, its moneymen too. Next, the looted dies found their way North and were used, possibly with the help of moneymen of Troas themselves, in striking gold coins, pierced, of a weight significantly

in excess of the aureus standard. This would be evidence therefore on a remarkable mechanism of the direct import of know-how to Barbaricum from the Empire that would form the foundation for later independent coinage of the Goths. It is conceivable that in a similar manner other novel technologies were introduced North during the Late Antiquity such as manufacture of wheel-thrown pottery, glass beads and vessels or the construction of stone fortifications.

### **Beyond Emperors. The Cult of Heroes in Roman Cyprus**

**Agnieszka Ochał-Czarnowicz** (Jagiellonian University, Kraków)

The worship of heroes is one of the most fascinating aspects of Greek religion. The aim of propose presentation is an attempt to briefly describe some specific aspects of heroes\_ veneration on Cyprus during the Roman Period. It will be mainly based on the interpretation of the archaeological evidences. While building the image of heroic cult at Cyprus its local elements (referring to local tradition, landscape, history etc.) the influences of Romanization process and the two side impact official emperors\_ cult will be underline. Heroes were the essence of the society from which they came. According to G. Heedren (1991) the main difference between worship of Heroes and Goods lays in the geographical limits of cult (opposition "local" versus "widespread"). The heroic cult character is also much more flexible and sensitive to the social and cultural impulse. How far and deep did it change in Cyprus during the Roman Period? Was it tend to be more local or imperial? Had it any impact on rites of the official ceremonies organized on island? These are three main questions I will try to answer.

### **A Roman Theos. Interpreting Antinoos between Greece and Rome**

**Christian Seebacher** (Ruhr-Universität Bochum, Bochum)

Der Vortrag fragt nach Integrationspotentialen der Antinoos-Verehrung für das Imperium Romanum. Dabei werden die differenten Bilder des Antinoos als Modi komplexer Interaktionsprozesse zwischen Zentrum und Peripherie, Kaiser und Reich, griechischem Osten und römischem Westen verstanden. Die zentralen Modelle für die Antinoos-Verehrung liegen im Osten des Imperiums, wo sie folgerichtig vielfach und auf unterschiedlichste Weise aufgegriffen wurden. Andererseits handelte es sich bei der Gottheit Antinoos um eine Schöpfung des römischen Princeps Hadrian. Verkompliziert wird der Befund zusätzlich durch Präsenzen des Antinoos im römischen Italien. Im Vortrag werden zentrale Antinoos-Bilder des Ostens und Westens auf ihre reziproken Interaktionsangebote befragt, mittels derer ein universaler imperialer Bezugsrahmen ausgehandelt wurde. (Welche Faktoren interpretierte der römische Westen als genuin 'griechisch'? Welche Rolle spielte andererseits der kaiserlich-römische Bezugsrahmen für die Antinoos-Rezeption im Osten?) Dabei ist der Blick insbesondere auf den Princeps zu richten, der im Dienste seiner Akzeptanz ständig kreative Kommunikationsangebote entwerfen musste, die für möglichst viele soziale Gruppen rezipierbar waren. Die Analyse räumlich und sozial differenter Aushandlungsprozesse befreit nicht nur Hadrian von rein biographischen Motivationszuweisungen, sondern löst auch schlichte Dichotomien von Hellenisierung und Romanisierung auf. So soll jenseits der kurzfristigen Prominenz des Antinoos abschließend gefragt werden, welche generellen Integrationspotentiale des Imperiums sich in dieser Fallstudie manifestieren.

### **After the "Great War" (AD 166-180) - A "New Deal" in Internal Relations within the Central and Northern European Barbaricum?**

**Hans-Ulrich Voss** (Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main)

Outside the boundaries of the Imperium Romanum grave finds testify to the self-representation and „internationality“ of the elites of indigenous peoples. Research on the „royal tomb“ of Musov in Moravia (CZ) and the „princely grave“ of Gommern on the middle Elbe near Magdeburg (D) provide valuable information on the period immediately before, during and after the Marcomannic Wars (AD 166/168-180). A detailed analysis of personal equipment allows us to recognize a network between the elites of Germanic and other populations on a geographically large scale that had grown over generations. This contribution will discuss the extent to which the Marcomannic Wars altered this network, and thus influenced the spread of Roman material goods in the Central European Barbaricum. That there were changes, is beyond doubt. The discovery of a battlefield on the „Harzhorn“ near Kalefeld north of Göttingen (D) from the year AD 235 highlights the immediate influence of Rome on intra-Germanic affairs. The change in the balance of power in the lower and middle Elbe region was not without effect on Romano-Germanic relations.

### **Romanisation and Urbanisation - The Waldgirmes Paradigma**

**Gabriele Rasbach** (Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main)

In the territories east of the Rhine the Roman forces encountered completely different conditions than in Gaul. Political, administrative and economic centers which could support a Roman rule no longer existed. In their case east of the Rhine prevailed a peasant subsistence economy. This economy was barely able to support the sometime sudden needs of the Roman army out of the country. If the Romans actually wanted to rule the conquered territories they had to develop their own infrastructure. This was done by the rebuilding and expansion of existing military camps, where additional buildings for



administrative and economic purposes were built (Haltern). Furthermore Dio Cassius reports the foundation of cities. The forum in the settlement of Waldgirmes, which was built atop of stone foundation walls, represents the first proof of such a city foundation east of the Rhine. The dendrochronological dating of timbers of two wells showed the onset of the Roman activities as early as 4 BC. The Roman settlement in Waldgirmes only existed for about 20 years (from no later than 4 BC to AD 16 at the latest). This exceptional situation makes the place an excellent research object for the urbanisation of a rural landscape.

### **Constructing Identities within the Peripheral Areas of the Roman Empire. The NW of Hispania**

**Manuela Martins** (University of Minho, Braga), **Jorge Ribeiro** (University of Minho, Braga), **Cristina Braga** (University of Minho, Braga), **Fernanda Magalhães** (University of Minho, Braga)

This paper aims to approach the processes of interaction and change occurring in the NW of the Iberian Peninsula resulting from the Roman domination in the region and its integration in the tarraconensis province following the administrative reform of Hispania undertaken by Augustus. After a general approach of the wider cultural context of NW it will be detailed how the territory integrated in the bracarense convent met a particular evolutionary process, resulting from the identity of the pre-Roman peoples and from the organization of the indigenous power in the region. Ultimately, it will be evaluated in detail the territory of Bracari, which controlled a vast territory between Lima and Ave rivers in the center of which was founded the Roman city of Augusta Bracara. Based on the available archaeological and epigraphic data it will be enhanced the indigenous identity expressions, which remain present in the funerary and religious practices and in the widespread adoption of the Italic architectural models. It is intended to discuss the negotiation and resistance processes underlying the adoption of the Roman way of life, through which new identity narratives have emerged.

### **Barbarian Rome? Roman Barbarians? Coinage and Identity in the Early Migration Period**

**David Wigg-Wolf** (Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main)

In the aftermath of the barbarian invasions of the late-4th and 5th centuries, a number of Germanic kingdoms came to be established on the territory of the Western Roman Empire. One of the visible features of this process was the replacement of the coinage of the old central imperial power with a series of coinages that have been attributed to individual kingdoms. The inhabitants of northern Europe beyond the Limes had long-standing experience of the use of Roman coinage as special purpose money, and by the late 3rd century some centres had started producing coinage on a significant scale, imitating Roman originals but adapting them and using them in a manner suited to the needs of their own cultural and social environment. However, once they had established themselves on the territory of the declining empire, they encountered a society using coins in a very different way. This paper will explore two aspects: how did the direct encounter with a society using coinage as general-purpose money affect the way Germanic groups used coins, and what does this tell us about Germanic identity. And how - if at all - did the Germanic kingdoms instrumentalise coinage as an expression of their own identity?

### **Reading the House of Leukaktios in Ptolemais (Cyrenaica)**

**Monika Rekowska** (Institute of Archaeology, University of Warsaw, Warsaw)

The process of Romanization of the Greek societies under Roman rule can be observed by analyzing the language of domestic architecture. Houses (its arrangement and decoration) reflect as in the mirror the changes of social status and life-style of its masters. Excavations carried out in Ptolemais (Cyrenaica) by the archaeologists from the University of Warsaw (2001-2010) brought to light a complex of several houses. The beginning of their occupation dates back to the founding of the Hellenistic city and some units remained in use until at least the sixth century A.D. One of them, the House of Leukaktios (3rd century AD) is still preserved in such a good condition that can be a subject of complex studies on its architectural arrangement, function of the rooms and pattern of decoration. A set of floor mosaics, wall paintings, stuccoes and architectural elements can serve as a basis for reconstructing its decorative program. For Leukaktios, Roman citizen, though Greek by origin, education and taste, his large two-storey mansion was the way of auto-presentation, demonstrating his status and social position in Roman society. However, at the same time, the house reflected the owner's taste for the traditional Greek culture. This ambiguity is a problem to discuss.

### **Der Gallo-Römische Umgangstempel "Auf Dem Spätzrech" bei Schwarzenbach (Lkr. St. Wendel/Saarland) - Vom Spätlatènezeitlichen Kultplatz zum Gallo-Römischen Pilgerheiligtum?**

**Daniel Burger** (Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main)

Die Aufarbeitung des gallo-römischen Umgangstempels "Auf dem Spätzrech" erbrachte insgesamt vier Bauphasen. Diesen geht ein späteinzeitlicher Fundhorizont mit einem Schwerpunkt in den Stufen Latène D2a und D2b voraus. Im Hinblick auf das in der späten Eisenzeit aufgegebene Oppidum "Hunnenring" und dem im Anschluss einsetzenden Fundhorizont im Bereich des späteren Umgangstempels sind Fragen nach der Bedeutung und Funktion des Heiligtums sowie dessen Beginn von besonderem Interesse, v.a. im Hinblick auf den starken einheimischen Charakter des späteren römischen Fundmaterials.

## **The Ways of Subsistence and the Production Facilities of the Late Roman Settlement at Bir Showish, El-Hayz/Bahariya Oasis, Egypt**

**Pavel Titz** (Institute of Classical Archaeology, Charles University in Prague, Prague), **Jiří Musil** (Institute of Classical Archaeology, Charles University in Prague, Prague), **Stanislava Kučová** (Institute of Classical Archaeology, Charles University in Prague, Prague)

Flourishing in the 3rd and 4th centuries AD Bir Showish belongs to the largest settlements in the territory of el-Hayz/Bahariya Oasis, Western desert, Egypt. Compared to other inhabited areas in the area, this settlement had survived through the 5th to the beginning of the 6th century. The presence of various production facilities/devices, detected by the archeological survey, features not only expected residential facilities and related agricultural activities, but it also represents the center of the local pottery production. The survey detected manawar/qanat system on site appears to be the key technical device requiring set of engineering and governmental management. Other attractive issues involve developed agriculture (fields and their surroundings, technology of pumping water out of pits using pumping machinery, distribution of water for irrigation etc.) or the composition of the planted crop. Southeast from House 1 at Bir Showish, quite a large field area, dated to the Roman period, was documented. The manawars/qanats terminate close to the fields.

## **Ancient Political Myths in Romanian and Moldavian Textbooks: Case Study - "The Romanization of the Ancestors of the Romanian People"**

**Alexandru Popa** (National Museum of Eastern Carpathians, Sf. Gheorghe)

The demystification of history is an en vogue term used in the historical researches regarding the post-socialist region. One can ascertain that historical researches conducted in many countries of the communist block have revealed and outclassed a whole series of historical myths and fabrications of the preceding period. At the same time one can observe that new historical myths, with a downright political influence, have emerged and have been promoted in the communist period. In this presentation I intend to discuss the myth of "The Romanization of the ancestors of the Romanian people" that is a frequent subject found in the Romanian and Moldavian textbooks. On the other hand, I intend to track the differences between the modern historical discourse in regards of Romanization and the ways this phenomenon is presented in both older and newer textbooks. As a base for my investigation I have used the history textbooks from Romania and Moldavia issued after World War 2.

## **On the Romanisation in the Romanian Historiography after 1945: From "Fighting against the Invader" to the "Continuity"**

**Florian Matei-Popescu** ("Vasile Pârvan" Institute of Archaeology, Bucharest, Bucharest)

The discourse of the Romanian historiography changed dramatically after the Second World War, due to the massive influence of the new concepts brought by the Soviets. For about two decades, 1945-1965, the Romanian historiography used the communist/soviet paradigm for explaining the past. The Roman age, which was hitherto seen as one of the golden ages of the Romanian past, became suddenly the opposite. The Romans, describe as invaders, brought only slavery and cold blood exploitation of the Dacians and of the natural resources of the land. As a consequence, the slaves and the Dacians fought against the invaders for about 150 years and finally they liberated the country. The discourse changed after 1965, as a consequence of the emancipation of the Romanian communists from the Soviet influence. The national/nationalist paradigm in the historiography was back in business. Which was seen in the very first days as a correction of the mistakes and exaggerations of the previous period, became under Ceausescu's rule a political dogma. The most important word was "continuity": continuity of the Dacians during the Roman age, continuity of the Daco-Romans after 271 and continuity of the Romanian people during the first Christian millennium.

## **Latinization of Moesia Inferior: The Legion Factor and the Archaeological Evidence**

**Alexianu Marius-Tiberiu** (Alexandru Ioan Cuza University of Iași, Iași), **Roxana-Gabriela Curcă** (Institute of Archaeology, Romanian Academy, Iași Branch, Iași)

The research on the role played by the Roman legions in the process by which the autochthonous populations embraced Latin is, most often, on literary and epigraphic source. The authors advance a new research direction, namely the taking into consideration of the archaeological data relevant for the long-term local mobility of the various units belonging to legions.

## **POSTERS**

### **Roman Fish Processing on the Western and Northern Shores of the Black Sea**

**Iulia Dumitrache** ("Alexandru Ioan Cuza" University of Iași, Iași), **Alin Mihu-Pintilie** ("Alexandru Ioan Cuza" University of Iași, Iași)

The authors propose an analysis of the salted fish industry and trade from the aforementioned area, focused on the quantitative and qualitative changes occurred in Roman times. In the Black Sea area, the most important installations are those

identified in Karkinitis, Chersonesos, Pantikapaion, Olbia, and not ultimately, Histria. Literary and epigraphic sources from classical and Hellenistic periods show a substantial production of salted fish from the Vth century BC, which does not mean that this activity was not conducted before. Although the Black Sea region was well known for its salted fish products, vats for fish sauces production were not found in this area. Literary sources that do not cease to praise, without exception, Pontic salsamenta, remain stubbornly silent on fish sauces.



## **T01S013 - THRACE, ANATOLIA AND BEYOND: RELIGIOUS AND RITUAL PRACTICES ACROSS CONTINENTS (EARLY BRONZE THROUGH EARLY IRON AGES)**

**Organizers:** **Morena Stefanova** (The Metropolitan Museum of Art, New York), **Maya Vassileva** (New Bulgarian University, Sofia), **Jak Yakar** (Tel Aviv University, Tel Aviv)

The interactions between Thrace and Anatolia have been the focus of scholarly debate in recent decades especially regarding the process of European Neolithization and 3rd and 2nd millennia BC trade routes across Anatolia, which linked the cities as far as the Upper Euphrates River with the Balkans. Thrace and Anatolia were socially and linguistically diverse regions, but were linked by exchange of exotic objects and raw materials, as well as of ideas, beliefs and rituals. The session aims at exploring the religious and ritual practices and at a better understanding of the dialogue between cultures by bringing together different disciplines and methodological approaches. The goal is to create a forum in which scholars and professionals can present and explore their ideas, discuss research theories and archaeological finds. The session topics include (but are not limited to) the following: - Religious and ritual practices visible in the archaeological record, including those from settlements, tombs and sanctuaries. - Landscape and mapping ritual context. - Religious identity and interconnections manifested in the archaeological record versus those expressed in art and texts. - Regional similarities and differences in state organized versus popular religious practices in the Near East and beyond.

### **ORAL PRESENTATIONS**

#### **The Cult Places at Northern Propontis**

**Zeynep Erdem** (Mimar Sinan Fine Arts University, Department of Classical Archaeology, Istanbul)

An archaeological survey was conducted since 2008 on Southeastern part of Turkish Thrace at the coast of the North Propontis between Tekirdag Province and Çanakkale Gallipoli Peninsula known as Thracian Chersonesos. During this survey many new cultural assets such as settlements, grave types and necropolis, fortifications and cult places were determined. In this article, in the light of the findings several features of these cult areas will be discussed. Up to now for this area there was a very limited information was known about the functions and religious rituals because of the lack of ancient written sources and epigraphical documents. Moreover up to now, not many detailed researches were conducted and the publications were very rare. Under the light of the new evidences, which were gathered during the survey, the cult areas will be discussed as their locations, qualities, and their findings. And also the comparison will be made between the contemporary examples of Northwestern part of Turkish Thrace and Bulgaria on the similarities, the differences, the problems on the chronological boundaries, and the ways of worship, the rituals and the cults.

#### **The Case of Clay Andirons - Transmission of Cultic Practices between EBA and MBA in Northeastern Syria and Anatolia**

**Zuzanna Wygnańska** (Polish Centre of Mediterranean Archaeology, University of Warsaw, Warsaw)

Miniature clay objects interpreted as “andirons” appeared on a number of sites dated to the MBA in the Syrian upper Khabur Basin and in North Eastern Anatolia. These distinctive objects have been interpreted as ritual paraphernalia, probable descendants of the portable hearths associated with the EBA transhumant people of the Transcaucasian culture and occurring in EBA in a widespread area of Syro-Anatolia and Palestine. The appearance of andirons in layers dated to MBA raises several questions concerning a transmission of cultic practices between NE Syria and Anatolia. First, it is curious why these very unique ritual items were adopted simultaneously in both regions only in the first half of the second millennium BC. The objects kept their cultic character but their exact meaning probably shifted between EBA and MBA, since - differently as in the previous period, they are often found in a funeral context. The range of occurrence of the MBA andirons is confined to the regions that had close economic contacts but the andirons are the only visible reflection of the relations in a spiritual sphere. They seem to be only faint echo of the earlier contacts.

#### **Dubene: Rituals and Burials**

**Martin Hristov** (The National Museum of History, Sofia)

The article presents the basic results from the exploration of Balinov Gorun Locality near the village of Dubene, Karlovo Region (South Bulgaria), in the recent few years. It was focused on the spaces between the mounds, where archaeological



structures were recorded. Thousands of gold items and elements of strings of beads had been cached under a stone cover in nine of these, together with decorated ceramic vessels, a gold dagger, a silver blade, glass beads, etc. The bones found in some of them proved to be of animal origin. The character of the material buried there leads to a suggestion that ritual structures will be more appropriate name for the objectives studied. The remaining four structures are characterized by a stone structure only. The comparative dating of seventeen from these nineteen studied structures places them in the Early Bronze Age III (in accordance with the Bulgarian periodization) – most generally, in the second half of the third millennium BC. The article also presents some hypotheses concerning the origin and manufacturing of the gold adornments. Some relatively old hypotheses concerning the contacts of Thrace with the Aegean, Anatolia, etc. are confirmed.

### **Armenia and Elam in the XV c. BC**

**Hakob Ervand Simonyan** (Director of the Scientific Research Center for Historical-Cultural Heritage, Ministry of Culture of the Republic of Armenia - SRCHCH, Yerevan)

The immense necropolis of Verin Naver, once covering over a hundred hectares, is situated 25 km west from Yerevan in Aragatsotn marz. The royal tomb I (diameter 50 m, height 2 m) of Verin Naver (1600-1400 BC) was excavated in 2011-2012 by the expedition of the SRCHCH. There were two graves under one common kurgan. Grave IA was built of huge tufa blocks. Here we found gold jewelers. A unique point of green obsidian, which is mined in the Mount Nemrut, near Lake Van, was found here. We discovered the bronze head of a handle, on which "David's star" is portrayed. Unique is the big black-polished cup decorated with stamped ornaments consisting of several rows of arrow-points. In Grave IB, its general length together with the dromos is 17 m, the funereal chariot; a lot of arrow-points (62) of red jasper, flint and obsidian were detected. Imported goods are presented in big amount: beads from Babylon, seashells from the Persian Gulf, nephrite from China. Five disk medallions and crown buckles of bitumen with relief portrayal of human face in an ornamented frame of figures of rams, as well as tree of life. These rare finds have straight analogues in Middle Elam culture.

### **Tatul and the Problem of the Origin of Early Thracian Peak-Sanctuaries**

**Krassimir Leshtakov** (Sofia University, Sofia)

Tatul is the first almost completely explored monument of the Thracian cultural heritage, with exceptionally long life sequence - from the second half of the third millennium BC to the end of the Roman period. The Bronze Age layer has been excavated within an area of 350 sq. m, and has a thickness of 2.2 m, which is really unique for the mountainous parts of Bulgaria and it is also comparable to the big tells that were inhabited in the third millennium BC. The rich evidence about the ritual life here poses the question about the origin of the Thracian peak-sanctuaries, which are approximately 20 in number and are concentrated mostly in the East Rhodope Mountain. Another subject of the report is also the possible relation with East Mediterranean cult traditions.

### **Mountain Sanctuaries and Megalithic Monuments: Problems of Research**

**Alexey Gotsev** (The National Archaeological Institute with Museum, BAS, Sofia)

Thracian rock and mountain sanctuaries in Bulgaria have intensively been studied for more than 30 years now. Important features of the organization of sacred space have been defined. Diverse cult practices performed there and various votive objects were identified. Data on their geographical spread and contacts between different cultic centers during various periods of their use is being constantly enriched. Recently, another type of archaeological sites has been studied in south-western Bulgaria that can be termed "megalithic sanctuaries". They differ from other sites and require specific methods for their identification and investigation. The present paper offer some considerations on their function and pattern based on the archaeological data from the Western Rhodope Mountains. A plausible explanation of the purpose of these monuments can be their sacred function. The defined areas of their distribution necessitate a study of their communication and interrelations with the mountain and rock sanctuaries during different periods from the late 2nd and 1st millennium BC. Thus, the role and the importance of the pattern of Thracian cultic centers would be better outlined among other similar sites and monuments in the Eastern Mediterranean.

### **The Rock Sanctuaries in Southern Thrace - Traditions, Rituals and Continuity**

**Borislav Borislavov** (Independent researcher, Sofia)

During the Second millennium BC a new phenomenon appears in Thrace - rock sanctuaries on mountain peaks. Although this problem has periodically attracted the attention of the Bulgarian archaeologists many questions remain unanswered. None of the sanctuaries are completely studied yet, but there is enough archaeological data for some preliminary conclusions. This article aims at presenting the complex and multiple aspects of research of the rock sanctuaries in Southern Thrace. Sites, located in Sacar and the Rhodope Mountains, that were studied mainly during the last twenty years - some of them by the author, will be discussed. The ritual practices and structures, visible in the archaeological records, along

with the organization and structuring of the sacred space will be presented. The offerings, sacrifices and the way of deposition of the remains will be analyzed. Changes during the Bronze and Early Iron Age will be marked. Special attention will be attributed to the cases in which topographic and ritual continuity is demonstrated. The significance of rock sanctuaries in the settlement system, especially during periods of transition, is great because such shrines remain the only constant structural element in this system.

### **Sepulchral Constructions in the Early Iron Age Thrace and Anatolia**

**Momchil Kuzmanov** (32 Language High School “St. Kliment Ohridski”, Sofia)

The investigation focuses on the main types of burial complexes and sepulchral constructions in Thrace and Anatolia. A number of close features revealed is used to elucidate the existing connections and interrelations between the investigated cultures. Burial mounds. They are well known in the Bronze Age Thrace, while in Anatolia they appear suddenly in the beginning of 1st millennium BC, and could be regarded as influence from the Balkans. A common trend in both areas is the forming of large tumular necropolises around the leading political and religious centres. Sepulchral constructions. They are diverse - dolmens, rock-cut tombs, monumental tombs, cysts, built graves or simple pits. In Thrace during the Early Iron Age the most impressive and numerous are the dolmens, built of big stone plates. The presence of dolmen-like constructions in some Anatolian sites is also an issue of examination. The rock-cut tombs are widespread in Eastern Thrace, and even more in Phrygia, Lydia, Lycia and Caria. Although with some different characteristics, the resemblances between them suggest a shared ideal and religious frame, the displays of which are most visible in the lands of southeastern Thrace, West Anatolia, and Phrygia.

### **Satellite Structures around the Dolmens in South East Bulgaria - Architectural Expressions of the Early Iron Age Funeral Rite**

**Stanislav Iliev** (Regional Museum of History, Haskovo)

With regard of the research on the Early Iron Age in Thrace, more relevant is the issue with well-defined regionalism in terms of archaeological material. Local differences are observed both in shape and decoration of pottery and in the topography of the habitation. Perhaps the most visible are differences in burial practices documented in archaeological records. In one chronological segment on relatively small geographical area were observed completely different concepts in funeral practices. If we assume that the funeral rite is a sensitive indicator of the religious notions on the society that practices it, it seems that the issues related to religious identity of local groups in Thrace would be very interesting. However, the emphasis of the present article is on dolmens - perhaps the earliest monumental burial structures in Thrace. Discussed are some structures accompanying these monuments, which could be interpreted as “architectural expression” of the funeral ritual, or at least a part of it. Although focus falls on Thrace, as examples are attracted funeral structures of a wider geographical area.

### **Rock-Cut Monuments of King Hartapu, Phrygian Tradition and Cultural Identity of Land Masa**

**Rostislav Oreshko** (University of Hamburg, Hamburg)

The rock-cut monuments provided with Hieroglyphic-Luwian inscriptions, which mention the name of king Hartapu, are found in central Anatolia and are generally considered to be early post-Empire Hittite monuments with conventional dating to 12th c. BC. However, taken without the inscriptions, some of them demonstrate clear similarities with the Phrygian rock-cut monuments, finding at the same time no parallels in the Hittite tradition. On the other hand, the definition of Hartapu as Hittite king raises serious doubts. Reconsideration of the structure of the two longest inscriptions (KIZILDAĞ 4 and KARADAĞ 1) and the meaning of some elements in them allows one to assert that Hartapu was in fact a king of Masa, the land which the Hittite sources of 14th-13th c. BC situate in the north-western parts of Anatolia. These observations, amplified by several others, lead one to the necessity to question the cultural and ethno-linguistic identity of this land and, per extension, of the whole north-western corner of Anatolia in the Late Bronze Age, hitherto defined – rather ex silentio – as ‘Anatolian’.

### **Rock-Cut Monuments in Thrace and Phrygia**

**Lynn E. Roller** (University of California, Davis)

One distinctive feature in the archaeological record from the Iron Age in southeastern Europe and western Anatolia is the regular occurrence of rock-cut monuments, whose unusual form indicates that they were used for cult purposes. In the Rhodope Mountains in southeastern Bulgaria there is a dense concentration of rock-cut features, primarily trapezoidal and triangular niches, carved onto the natural mountainous terrain and often located in inaccessible high places. A similar practice can be observed in western Anatolia, where there are several concentrations of rock-cut niches and semi-iconic humanoid figures; here too these features usually occur in isolated settings that are difficult of access. The monuments in the Rhodopes are associated with the Thracians, while those in western Anatolia appear to be of Phrygian origin. While the two groups of rock-cut features are not identical, they share several common traits: both are located in rural mountainous settings, both are regularly oriented towards the east, and both are anonymous, providing no indication to whom they were dedicated. The common origin of Thracians and Phrygians is known from historical records and their similar languages. The rock-cut cult features of both regions support this commonality, providing evidence for shared cult practices between the two groups.

## Phrygian Cult: East and West

**Maya Vassileva** (New Bulgarian University, Sofia)

Phrygian Iron Age culture is being often interpreted by modern scholars as Anatolian in nature. In the same time nobody (or very few) denies Balkan, i.e. Thracian elements and affinities of Phrygian culture. The outer appearance of Phrygian monuments can hardly find direct parallels, either east or west. The present paper discusses the eastern and western elements that underlay the original amalgam of Phrygian cult and religious practices. Phrygians could indirectly have communicated with the Anatolian Bronze Age heritage in the sphere of cult through the Neo-Hittite kingdoms. Royal cults to Great Mother Goddesses in Phrygia and at Karkamis have long been compared. Aniconic cult or votive images, inscribing stelae and representing status by symbolism of the goddess may possibly betray eastern inspirations as well. The limited use of scripture only in ritual contexts in both Phrygia and Thrace suggests an important cultural similarity. The rock-cut sanctuaries and mountainous sacred places also provide a rich data for comparison. The impressive Phrygian rock-cut facades have no match among Thracian rock sanctuaries but smaller, less attractive and less studied monuments have. Lesser undecorated Phrygian rock-cut tombs provide good parallels to the Iron Age Thracian rock-cut tombs.

## Building Rituals and Places of Worship: Thrace and Anatolia during the Early Bronze Age

**Morena Stefanova** (The Metropolitan Museum, New York)

This paper examines the evidence for foundation rituals in Early Bronze Age Thrace and investigates their function and meaning as it has been demonstrated in pre-Hittite Anatolia and in the Hittite ritual texts. Although, evidence of sacred buildings is scant within the studied area, there are some archaeological finds that can possibly reconstruct the ancient Thracian foundation rituals and relate them to the broader history of foundation rituals in the ancient Mediterranean, especially to the traditions of Egypt and Mesopotamia. The present study pursues several objectives: to bring attention to the possibility of identifying sacred structures within the archaeological context; to examine some objects, which may be defined as items that played a role in a religious ceremony, including offerings to the gods; and to observe closely some possibilities of distinguishing the different types of ritual practices related to the building activities, located inside and outside the settlements. One of the main functions of the ancient Mediterranean building rituals was to create a link between the builders or human patrons and their divinities. The paper offers an understanding of the process of constructing sacred architecture and its role in the performance of cultic activities.

## Statues as Star Gates: Hittite Images as Portals to the Gods

**Petra Goedegebuure** (Oriental Institute of the University of Chicago, Chicago)

Unlike elsewhere in the Ancient Near East, destruction of images and inscriptions was very rare in Hittite society. Whereas one can argue for Mesopotamia that the indexical image and the body were equated, there is no textual evidence for this in Hittite culture. The Hittite material and textual evidence points at a very different conception of the image: signs and signifieds, images and their referents, cannot be equated. Instead, the image, as iconic index, could be perceived of as a portal that serves as evidence for the existence of the referent. One could establish contact with the referent through the portal, but the destruction of the image would merely lead to the closing of the gate, to disempowerment, but not to the destruction of the referent. In this presentation I will further develop the visual pragmatics that helps understanding how cultures view their images by looking how cultures refer to images, using the frameworks of Roland Barthes and Charles Peirce. In this way, I hope to be able to establish a connection between the linguistic and material aspects of imagery, and to show how the religious identity of the Hittites differed substantially from their contemporaries in the Ancient Near East.

## Imagery and Interconnections: A “Divine” Hurrian Lyre (?), and Asiatic Musicians at Akhenaten’s Court

**Phyllis Saretta** (The Metropolitan Museum of Art, New York)

One of the most intriguing examples of Amarna temple relief carving is the depiction of blindfolded Asiatic musicians and a large standing lyre that they clasp or play. Scholars have long debated the ethnic origins and gender of these foreigners. This remarkable image poses several perplexing questions. Why would foreign musicians participate in a cult service for the Aten? Why are they blindfolded? What was the means of their exchange or transmission? The author discusses the iconography of the image and considers its place within the context of New Kingdom Amarna art, its realia in the Late Bronze Age cultural koine of Western Asia and traces the phenomenon of Bronze Age lyre gods across the borders from Mesopotamia to Anatolia, the Levant, the Aegean and Pre-Classical Thrace.

## Exploring the Thracian-Anatolian Religious Interface: How Useful are Textual Sources?

**Ian Rutherford** (University of Reading, Reading)

This paper has two aims. First, I aim to trace the history of research into the interface between Anatolian and Thracian religion in so far as this has been conducted on the basis of alphabetic textual sources, from Thrace and Greece. One of the main problems with this approach is that the texts are comparatively late, but in some cases they may still tell us something. Secondly, I shall look at some specific cases of religious interaction between Thrace and Anatolia. I shall focus

in particular on the case of island-networks in the region, and as example I shall examine the island of Samothrace, which is well connected to the Thracian mainland (especially through the cult of the Zerynthian Mother), but is also closely linked to the mythology of the Troad through the figure of Dardanos.

## POSTER

### **The Use of Plants in Ancient Funerary Rituals- Similarities and Differences between Thrace and Anatolia** **Tzvetana Popova** (The National Institute of Archaeology and Museum, BAS, Sofia)

The use of plants in variety of rituals is common practice in the Antiquity. Numerous archaeobotanical remains from different archaeological sites presented evidences that some plants were particularly introduced to the religious rituals. The goal of the present study is to identify specific plants and food that were subject of ritual practices. The paper will discuss similarities and differences between different plant remains in the archaeological contexts and will identify which plants were in use as a ritual food. The study is based on a comparative archaeobotanical analysis of several Bronze Age - Early Iron Age sanctuaries in the territory of Thrace in Bulgaria as well as in Greece and Turkey and gives a clear indication of certain similarities and differences between those regions, which will be discussed as well.



### **T01S015 - CULTURAL CONTINUITY, TRANSFORMATION AND INTERACTION IN WESTERN ANATOLIA AND THE AEGEAN FROM THE EARLY NEOLITHIC UP UNTIL THE MID-SECOND MILLENNIUM BC**

**Organizers:** **Turan Efe** (Bilecik Şeyh Edebali University, Department of Archaeology, Bilecik), **Ourania Kouka** (University of Cyprus, Department of History and Archaeology, Archaeological Research Unit, Nicosia), **Deniz Sarı** (Bilecik Şeyh Edebali University, Department of Archaeology, Bilecik)

The western part of Anatolia and Mainland Greece form both landmasses surrounded on three sides by sea. The mountainous terrain of the eastern and southern parts of the Anatolian peninsula dampened, to a great extent, the movement of people to the west and the influx of cultural elements – specifically from the neighbouring Syro-Cilicia and Southeastern Anatolia, which were under the influence of the Mesopotamian cultural sphere for long periods. As for the Aegean side, the Balkans' influence from the north was felt mainly in the Neolithic as far south as Thessaly. Both peninsulas developed distinct cultures of their own as early as the Neolithic Period, mainly due to the aforementioned partial isolation from their respective mainlands. Nonetheless, the cultures of the two regions shared more cultural elements and parallel developments between themselves than with those of the neighbouring regions of Eastern Anatolia, Mesopotamia, and the Balkans. Although the Aegean islands served as stepping stones for promoting contacts between both sides of the Aegean, they created distinct cultural traits, which they retained for millennia. Crete, the biggest one of all, even created its own civilisation mainly due to its exceptional natural and economic size and its location at the periphery of the main Aegean communication routes. The evolution of different cultural traditions in micro-regions of Western Anatolia, the Aegean islands and Mainland Greece appears to have taken place in parallel; the occasional divergence or transformation in cultural development cannot be definitely linked to migratory movements or to acculturation. From the end of the Third Millennium BC onwards, these dynamic Western Anatolian and Aegean regional cultures eventually led to the rise of the Minoan, Mycenaean, and Hittite civilisations. The topic of the proposed session will be in keeping with the primary theme of the "Connecting Seas-Across the Borders" meeting in İstanbul. As such, it aims to assess and evaluate, in light of recent investigations, the cultural processes in the western part of the Anatolian peninsula, in the insular Aegean, and on Mainland Greece, as well as the cultural interactions among these regions from the Neolithic Period up until the Mid-Second Millennium BC.

## ORAL PRESENTATIONS

### **Maritime Networks & Continental Connections - Multiple Strategies of Neolithic Transition**

**Barbara Horejs** (Institute for Oriental and European Archaeology, Vienna), **Felix Ostmann** (Institute for Oriental and European Archaeology, Vienna)

Based on new archaeological data gained by excavations at Çukuriçi Höyük and surveys at neighboring Arvalya Höyük, a model of early farming villages will be discussed in the context with other Neolithic sites known in the region, like Ulucak, Ege Gübre and Yeşilova. For the first time a new cultural cluster (Neolithic Group of Central Aegean Coast) can be defined for 7th millennium BC. Due to the investigations of colleagues in this area of Western Anatolia during the last decade, we are now able to provide a more detailed picture of the initial stages of Neolithic transition and the different networks installed during the developed Neolithic phases. Complex subsistence strategies, irregular exchange systems, equal technologies, comparable material assemblages and different architectural patterns of these neighboring Pottery Neolithic villages of the 7th millennium BC form an entity that differ from cultural groups e.g. known in the Lake District or in the Marmara Region. The main focus will lie on the different dynamics, scales and intensities of the Aegean-Anatolian interactions within

this group. These complex on- and offshore interactions will be displayed and therefore highlight the role of the Aegean in general and the coastal zone of the Izmir region in particular.

### **Impressed Pottery Tradition in the Neolithic Settlement of the Ege Gübre: Regional and Transregional Interactions on the Aegean Coasts**

**Ali Ozan** (Pamukkale University, Denizli)

Towards the end of the 7<sup>th</sup> millennium BC and the dawn of 6<sup>th</sup> millennium BC, a new kind of ceramic, named as “impressed pottery” after the decoration technique, appears on the Aegean coasts. This kind of pottery can be observed in Eastern Mediterranean and spreads over the Western Mediterranean coasts, it can also be found on some parts of coastal Black Sea. In Ege Gübre Neolithic Settlement, Impressed Pottery is attested together with Red Slip pottery, within contexts from early 6<sup>th</sup> millennium BC. As known from the coastal Aegean settlements with earlier levels, this type of pottery seems to have emerged suddenly, without any processors. The percentage of the mentioned pottery in Ege Gübre is lower than %1, and they also form a tiny percentage in the other coastal settlements. The evaluable data indicates that the Impressed Pottery had reached on the Western Anatolian coasts and Greece as a result of the same process. Both regions reveal a small percentage of Impressed Pottery within the general assemblage. Thus, impressed pottery can be considered as a cultural influence on the Aegean coasts.

### **Caught in the Middle? The Chalcolithic in Western Anatolia between Two (R)evolutions**

**Rıza Tuncel** (Eastern Mediterranean University, Famagusta)

The Neolithic revolution and the formation of more sizeable polities in the EBA have been much discussed in the archaeology of Anatolia. Although following a different and delayed course from the more easterly regions, western Anatolia also provides plenty of evidence for the beginnings of an agricultural/settled life in the Neolithic, as well as the emergence of elites in the EBA. The Chalcolithic “centuries in the middle” have been much neglected in the past, mainly as a result of scant evidence. Although recent investigations are providing exciting new data for this “Dark Age” in between these two (r)evolutions. The picture that is beginning to emerge is one of settlement diversity and fragmentation in sub-regional cultural trajectories - as exemplified by the lack of solid architectural remains in many settlements dating to the earlier part of the Chalcolithic, as well as the still existing gaps in the settlement history of many sites, although material culture displays certain common traits. This paper will attempt to question some of the presumptions about the Chalcolithic as a homogenous transitional period into the Early Bronze Age and underline the many different possible trajectories that led up to the emergence of a more stratified society.

### **Life in the Mountains: Recent Evidence on “Middle and Late Chalcolithic” Periods from Cave Sites in South-Western Anatolia**

**Fulya Dedeoğlu** (Ege University, Izmir)

Depending on the fact that the majority of the archaeological researches up today are being conducted on the agricultural plains, our understanding on the possible settlement patterns of the mountain habitations, their interregional relations and cultural interactions remains silent. These hilly zones, although rarely chosen for habitation when compared to the plains, are crucial for the different opportunities they serve in different altitudes. Thus, mountainous areas have always been a habitation zone nearly in every period. The survey project carried out around Çökelez Mountain and Akdağ in Denizli province of south-western Anatolia so far revealed three cave settlements occupied during the Middle and Late Chalcolithic periods. This paper aims to focus on these three cave settlements, not only important for the settlement patterns, but also remarkable in terms of the chronological and cultural sequence in the region.

### **The Early Bronze Age Cultural Mosaic: Interpreting Cultural Process and Transformation in the East, the Central and the West Aegean**

**Ourania Kouka** (University of Cyprus, Nicosia)

The Aegean area depicts since at least the late Upper Palaeolithic the most vital theater of cultural activity in the Mediterranean basin, as archaeological research in the Aegean since its beginnings in 1870 with the excavations of Heinrich Schliemann at Troy indicate. The publication of excavations and surveys undertaken under typological, sociological, anthropological and economic criteria clarified the divergent development and character of cultural process in the various geographical and climatological landscapes of the Aegean, namely in Mainland Greece, the Cyclades, Crete, Macedonia, Thrace, the North and East Aegean islands and Western Anatolia littoral. This became distinct already in the Neolithic, in particular, though, in the Early Bronze Age, a period characterised by population growth, new settlement patterns, changes in size and intra-site structure of settlements, intensification of agriculture, craft specialization, industrial development (metallurgy, etc.), evolution of ship building technology and expansion of trade, social stratification and ranking. This paper will discuss



the reflection of the above features in domestic, sacral and funeral archaeological environments in order to define communal identities, and to interpret the cultural process and transformation, as well as the cultural diversities of the west, the central and the east part of the geographically fragmented Aegean during the third millennium BC.

### **Cultural Interactions between West Anatolia and the Aegean during the 3rd millennium BC: Changing Dynamics**

**Vasıf Şahoğlu** (Ankara University, Ankara)

Aegean world witnessed great developments in seafaring and organized trade activities during the 3rd Millennium BC. A unique culture, dominating the Aegean sea, flourished in the Cyclades during the first half of the 3rd Millennium BC. Cycladic seafarers reached all the coasts of the Aegean (Anatolia, Greek mainland and Crete) and acted as the hub of this network in this process. Distribution of obsidian and metals along with the limited resources on the islands as well as the islanders' dependence on the mainlands, must have been some of the main reasons behind the presence / activities of the Cycladic seafarers around the Aegean. This picture changed effectively around the middle of the 3rd Millennium BC mainly due to important new developments emerging from the eastern mainland, Anatolia. With the western expansion of the Anatolian Trade Network, the Anatolian seafarers started to become active in the Aegean Sea - even setting up small fort sites at strategic locations around the Cyclades in order to control the smooth flow of sea connectivity. This rather short period, brought an end to many of the characteristic elements that shaped up the Cycladic Civilisation and opened a new page in the story of the Aegean.

### **Emergence of Cultural Entities and Their Possible Evolution into Political Powers in Western Anatolia during the Early and Middle Bronze Ages**

**Deniz Sarı** (Bilecik Şeyh Edebali University, Bilecik)

In Western Anatolia, during the timespan covering roughly 3200-3000 BC, we can speak of a "breaking point" in the cultural developmental process, in which characteristic cultural elements of the EBA began to take shape. In the succeeding EB I period, cultural regions and pottery zones become apparent; these may delineate areas controlled by local political entities. Architecture and archaeological finds, especially from the late EB II on, support the premise of the emergence of more dynamic local political powers and urbanism parallel to this development. The region intensified its cultural and commercial relations with distant areas as these entities (kingdoms) gained more and more political and economical power. The critical question here is if there is any relation between these local kingdoms and the west Anatolian "lands" of the Second Millennium B.C. mentioned in the Hittite texts. This paper will examine the cultural and political development of western Anatolia in light of new research, from the beginning to the end of the Early Bronze Age. It will look for possible answers to clarify the relationship between the EBA kingdoms and the "lands" of the 2nd Millennium Western Anatolia – in other words, if the "lands" are the successors of the EBA local political powers.

### **The Development of Urbanism in Western Anatolia and the Aegean Prior to the Late Bronze Age**

**Özlem Çevik** (Trakya University, Edirne)

As is well known, urbanization first emerged during the 4th millennium BC in the Southern Mesopotamia. However, until the second millennium BC urban life was not penetrated to Western Anatolia and the Aegean, although it was experienced in Northern Mesopotamia after the mid-third millennium BC. Despite one may find certain degree of social complexity before the second millennium BC in the Western Anatolia and further west, the unilinear development sequences which ultimately led to urbanization cannot be claimed. By surveying the relevant evidence such as settlement layouts, spatial organization, craft specialization and exchange patterns, this paper aims to open a discussion on common and peculiar aspects of social complexity on both sides of the Aegean Sea.

### **Architecture and Urbanism at Seyitömer Höyük during the EB III Period**

**Laura Harrison** (Buffalo University, Buffalo)

One of the most remarkable changes to occur in Early Bronze III is the widespread appearance of proto-urban and urban settlements throughout Western Anatolia. While the architecture and spatial organization of these settlements has been widely studied, the social implications of shifting from village to city life have received comparatively little attention. Recently, anthropologists have stressed that spatial organization plays a crucial role in human behavior, and that patterns of interaction, privacy, and power are expressed in the design of buildings and settlements. This study examines the Early Bronze III architecture from Seyitömer Höyük, a settlement in western Anatolia that had cultural ties to both the Aegean and Mesopotamian worlds. I employ an integrated approach that combines anthropological theories of space with architectural analysis, in order to reveal how changes in the built environment embody social change, during an important phase of urban development in western Anatolia.

## **From East to West: The Potter's Wheel as an Evidence for Communication between Western Anatolia, Aegean Islands and Mainland Greece**

**Maria Choleva** (Paris 1 Panthéon Sorbonne, Paris)

By the late 3rd millennium BC, the first signs of the use of potter's wheel appeared throughout a wide geographical area which includes sites in Western Anatolia, Northeastern Aegean islands and Mainland Greece. The first wheel-fashioned (and not wheel-made) pottery spread over this area through a similar technological and morpho-stylistic ceramic assemblage, known in literature as Lefkandi 1 or Kastri group. This apparently common assemblage - evidence for wider common practices and habits - is considered as a unified and coherent phenomenon. However, a detailed technological analysis focused on the manufacturing techniques and methods used locally for producing the wheel-fashioned pottery provides a differentiated image of this phenomenon as it is expressed in the different zones of the Bronze Age Aegean world. This paper aims at exploring this assemblage by putting emphasis on the local particularities of the wheel-fashioned pottery and by reaching the local processes of the adoption and the adaptation of the potter's wheel. The appearance and the dissemination of the new tool of producing pottery reflects probably the culturally mediated ways that the different communities participated to the established networks of contacts and exchanges which formed a common pottery tradition.

## **Continuity and Change at the End of the EBA in the Aegean and Western Anatolia**

**Peter Pavúk** (Institute of Classical Archaeology, Charles University, Prague)

The aim of the paper will be to re-assess patterns of continuity and change between the EBA and the MBA, till the beginning of the LBA in Western Anatolia and the Aegean. Most contribution start from Crete, or the Argolis. This time, we shall try to start from the North Eastern Aegean and see how the evidence fits what we already know from the Southern Aegean, only to come back to the Western Anatolia as such. Being a pottery specialist, the approach will be mainly ceramic. It will be likewise stressed how important it is to deal with certain phenomena in circum-aegean parameters. Only that way we can get the whole story.

## **Middle Minoan Period and Its Impact on Western Anatolia**

**Sevinç Günel** (Hacettepe University, Ankara)

In the Aegean world, evidence related to settlement patterns, architectural tradition, socio-economic structure and art in the Minoan period played an important role in the shaping of the archaeology of the region. On the island of Crete, the heart of the Minoan culture, cities based on a certain system and cultural structure established the foundations of a developed order in the Early Minoan period, and this system continued to develop more forcefully in the Middle Minoan period. Minoan influence in the 2nd millennium BC is observed in a geographical areas that encompasses the Aegean and the Mediterranean regions. Within this distribution area, Western Anatolia is prominent with archaeological evidence that most intensively reflects Minoan cultural influence. Among the 2nd millennium cities in the coastal region of Western Anatolia, Çeşme-Bağlararası, Milet, Çine-Tepecik and Iasos have shown that relations with Minos cannot be explained solely by a trade-based interaction. These sites make it possible to define the cultural association between the two regions, as well as a detailed chronological development in the Middle Minoan period.

## **The Middle Helladic Period in the Aegean: Cultural Processes and Transformations in the Aegean Middle Bronze Age and Its Interaction with Western Anatolia**

**Kalliope Sarri** (Independent researcher, Athens)

The Aegean Middle Bronze Age is a transitional period with evident social rearrangements and population mobility showing an enigmatic development which is open to alternative interpretations. Compared to the previous and the later Bronze Age periods, it is considered to be a time of setback similar to later historical periods characterized as Dark Ages. Despite this characterization, radical changes in technology, trade and communication are observed factors which gradually created the conditions for the formation of the Late Bronze Age palatial societies on the Greek Mainland. Unlike the hinterland cultures, which were more isolated and fixed to their previous local traditions, the coastal settlements of Mainland Greece, the Aegean Islands and Western Anatolia seem to fit into a network of intensive communication that often transmitted their universal character to the mainland. The residues of the material culture and the social structure show an evolving society, technologically mature, flexible and ready to receive external stimuli and adopt new models of social management. This presentation explores the most important Middle Bronze Age coastal settlements of the Aegean emphasizing the economic and social transformations as they emerge in the settlement pattern and the funerary practices.

## **The "Master with Lion Motif" of Bronze Age Cretan Iconography: A Possible Witness of Cultural Contacts and Interaction between Crete, Anatolia, Egypt and the Near East**

**Eleni Drakaki** (Independent researcher, Athens)

The motif of a male figure accompanied by a lion, here conventionally termed 'Master with Lion', was conceived in the Neopalatial era, the most flourishing period of the Bronze Age civilization of Crete, and has thus far been witnessed exclu-

sively on (a very small number of) works of glyptic (seals and sealings). Considering the nature and extreme rarity of the Cretan artifacts which carry this motif as well as the fact that it was conceived at a time of intense interaction and contacts between Crete, Anatolia, Egypt and the Near East, this paper investigates the possibility that its appearance in Cretan art was a result of cultural - and perhaps even religious/ideological - contacts and interaction between these great Eastern Mediterranean cultures.

### **The Northwestern Frontier of the Hittite Heartland: Hittite Presence in Eskişehir Region with the Help of Şarhöyük Material**

**Mahmut Bilge Baştürk** (Anadolu University, Eskişehir)

Eskişehir Plain, surrounded by mountains to the north, west and south, marks the last northwestern extension of the Central Anatolian plains, while forming an open field between the hilly zone and the agricultural lowlands. The plain gets narrower and becomes a niche to the west before being restricted by mountains, where a series of major and minor natural passes are in use since the dawn of the history. Connecting the eastern and southern parts of Marmara, and northern Aegean, to Central Anatolia via Eskişehir Plain, these passes all reach to the mentioned narrow niche. Şarhöyük, aka Dorylaion, being located to the very centre of this narrow niche, had played a crucial role for the control of the trade and the intruders so far. Thus, it is not strange to see the Hittites settled at Şarhöyük, beginning from the Early Kingdom period until the end of the empire. However, it is more interesting to trace a very firm and homogenous Hittite culture on the site, rather than a local and peripheral one. This paper focuses on the Hittite layers of Şarhöyük, and tries to make an understanding of the Hittite cultural and military policy on the crossroads of Eskişehir region during the mid-second millennium BC.



### **T01S016 - THE EASTERN MARMARA REGION IN ANTIQUITY: A TRANSIT REGION BETWEEN EUROPE AND ASIA**

**Organizers:** **Ayşe Çalık Ross** (Kocaeli University, Department of Archaeology, İzmit), **Amelia Dowler** (Department of Coins and Medals, The British Museum), **Frank Trombley** (Cardiff University, Cardiff)

Throughout history, the Marmara region, in the north-west of today's Turkey, has been an important area of contact, conflict, trade and transit for peoples and civilisations of Europe and the Middle East. At the same time, due to its geographical location, including its proximity to key seaways, and its natural resources, it has consistently witnessed economic development and prosperity. It was home to metropoli of global significance such as Constantinople, Nicomedia, Nicaea, Prusias ad Hypium and Hellenopolis and other centres of cultural and religious activity. The papers in this session will attempt to discuss the chronology for this region in antiquity and to fill the gaps in our knowledge of the history, economy and culture of the Eastern Marmara region, not least through presenting finds from recent surveys and excavations carried out in an area bounded by the Black Sea and the Sea of Marmara, an area traversed by key wartime and peacetimes routes between Asia and Europe.

### **ORAL PRESENTATIONS**

#### **The Economy of Roman Nicomedia**

**Hale Güney** (Ipek University, Ankara)

The aim of this paper is to present the results of my PhD thesis on the resources and economy of Roman Nicomedia (modern İzmit in Kocaeli Province), completed at the University of Exeter (England) in 2012. The issue of the economic behaviour of ancient cities has been a controversial subject within the field of ancient economics. Although in the past two decades there has been an increasing amount of literature on the economy in antiquity, hitherto only a small number of ancient cities have been studied, with the aim of questioning old and new approaches and determining the dynamics of the urban economy in antiquity. Just a few monographs devoted to examining the economy of a particular city have come into existence, such as the studies of Pompeii and Corinth. This paper therefore reveals the economy of Roman Nicomedia, one of the most important port cities in the ancient Mediterranean, by examining its production, consumption, and distribution patterns, raising some important methodological considerations as it does so.

#### **A Transit Harbour in Antiquity between Europe and Asia: Istanbul-Bathonea**

**Şengül Aydıngün** (Kocaeli University, Kocaeli)

This paper will present the results of the first five years of the Bathonea excavations in the basin of Istanbul's Küçükçekmece Lake. The excavations started officially in the season of 2009. The first discoveries were two ancient harbors, complete with the remains of a lighthouse and a number of ancient roads that probably connected to the Via Egnatia. The excavations gained momentum after the 2011 season, extending to three distinct sites. The southernmost of these sites is the Great Harbor and its surroundings. Two kilometers north of this is located the small harbor and its surroundings, while one kilometer



further north we find the third site, comprising a castle, a possible imperial palace and a enormous open air cistern. Around the small harbor, excavation is continuing of an apsidal building. Below this building dated to the 4th-5th centuries BC, the foundations of other Hellenistic buildings have been identified. Not far away, a polygonal planed building with a mosaic floor points to the existence of a martyrion from the 4th-5th centuries AD. Also in the same site, the remains of a very large building complex are being unearthed. The great number of small finds suggest the presence of different specialized workshops.

### **Epigraphic Research in Eastern Bithynia**

**Bülent Öztürk** (Sakarya University, Sakarya)

The territory of Eastern Bithynia has long attracted the attention of travelling antiquarians due to its rich archaeological and epigraphical potential. Archaeologists and epigraphers such as E. Kalinka, G. Mendel, L. Robert, F. K. Dörner, D. French, S. Şahin and C. Marek conducted epigraphic and historical geographical research here between the mid-19th and early 21st century. In recent years, new epigraphical field surveys have started within the eastern part of Roman Bithynia, including in the districts of Geyve, Taraklı and Pamukova (Sakarya province) and Gölpazarı and Osmaneli (Bilecik province), undertaken by a team headed by Dr Hüseyin Sami Öztürk and, since 2012 in Göynük and Mudurnu (Bolu province), by a team headed by Dr. Filiz Dönmez Öztürk. Concurrently, new epigraphical research has been conducted in the İstanbul, Iznik, Sakarya, Karadeniz Ereğli, Konuralp and Amasra Archaeological Museums by Dr. Hüseyin Sami Öztürk and Dr. Bülent Öztürk. The excavations at Tieion/Tios (Zonguldak/Filyos) on the southern Black Sea coast have also presented new inscriptions that have been compiled into a corpus. Consisting of honorary decrees, milestones, dedications to gods and goddesses, weights and gravestones, these inscriptions add new information to the history of Roman Bithynia.

### **Tourism in Bithynia throughout Antiquity**

**Tulu Çiftçi Gökkadar** (Kocaeli University, Kocaeli)

Humans have always desired to move around on earth and get away from their usual dwelling places. From ancient times to the modern day, people have traveled long distances with different objectives in mind, such as exploration, finding provisions, migration, faith-seeking, trade, war, empire-buiding and colonization. Although the popular modern term “tourism” has been in use only since the 17th century, travelling merely with the purpose of having fun, relaxing, being healed or seeking and learning something were also accomplished by the ancients. This paper focusses on early tourism and tourists in Bithynia throughout the Hellenistic and Roman times. Ancient sources convey information about significant early touristic activities which took place in Asia Minor, such as journeys of pilgrimage, gatherings for festivals, trips to healing centers and spas. This paper examines Bithynia’s ancient roads and ancient lodgings for travellers on the basis of not only literary sources but also data emerging from archaeological surveys, evaluating the finds within the context of ancient tourism. Consequently, the paper attempts to highlight the place of Kocaeli province, in some sense the gateway to the Anatolian Peninsula, within the history of tourism.

### **Marble Quarries and Artisanry in Nicomedia**

**Efdal Hardal** (Kocaeli University, Kocaeli)

Nicomedia (modern İzmit) lay at the intersection of the main trade routes between Asia and Europe. However, the importance of Nicomedia was also due in no small measure to the fact that the city possessed marble-quarries, which might explain the various temples, churches, baths and other structures in the region. Judging from the remaining physical evidence of the ancient marble-quarries and of the ancient theatre in Nicomedia, there are very likely to have been copious examples of other art forms, such as works of sculpture. Nicomedia’s status as one of the main trade centers of the ancient world would definitely have had an impact on the art forms produced there, especially ceramics. After all, the prosperity of the city would inevitably have left its mark on the local culture and social life, which explains why, throughout history, the city has maintained its specific characteristics. As John Ward-Perkins specifies in his publication (1980), the marble trade centered in Nicomedia was famous throughout the whole region. The purpose of this paper is to examine a selection of marble-based art forms from Nicomedia, particularly sculptural and architectural pieces, mindful of the trade links and cultural interaction that characterised ancient Northwestern Anatolia.

### **The Early Medieval Anatolian *Kastron***

**Frank Trombley** (Cardiff University, Cardiff)

I propose to discuss the continuity of urban centres in early medieval Anatolia. The emphasis will be on sites where there is evidence for lower towns, and particularly sites where there is evidence of fortifications. A substantial number of sites fall into this category, among them Amorion (Arabic ‘Amuriyya), Ankara, Barata (present-day Binbirkilise in Karaman), Kotyaion (present-day Kütahya) and Euchaita (present-day Avkat). The argument will consist of observations on the layout of their fortifications and on the likely zones of habitation on the plains and lower hillsides in their territories. The data will be contrasted with the evidence for Nikaia in Bithynia, an important site that enjoyed direct continuity throughout the medieval period, although it had no *akropolis* or other refuge site, but lay on a substantial plain in the vicinity of a lake. Inferences

will be drawn from Byzantine and Arabic historical texts, itineraries of the Arab *barīd* (Ibn Khurdadhbeh), Latin crusade narratives, the surviving epigraphy, early photographic prints, and the geographical character of the territories of these sites, to suggest the character of habitation and a model for Anatolian *kastron* culture throughout the early medieval period.

## POSTERS

### **Monitoring the Eastern Marmara Region from the Air: The First Aerial Archaeology School in Turkey**

**Ayşe Çalık Ross** (Kocaeli University, Kocaeli)

In Turkey the discovery of the so-called ‘cradle of civilizations’ from the air could take place only two centuries after excavations had begun on the ground. ‘The First Aerial Archaeology School in Turkey’ took place in a very appropriate place, through which all roads in antiquity had to pass, namely the Kocaeli region, in the heart of which lay the ancient capital of Nicomedia. The wonders of Nicomedia lie beneath, or are hidden amidst, modern İzmit, and it seems unfeasible to conduct a comprehensive excavation in such a densely populated and built-up area. Surveying the area from the air and cross-matching the observations from above with what one expects to find under the ground seems to be one of the only solutions for obtaining scientific data from the area. With the aim of shedding light on the archaeological potential of not just the Kocaeli area but indeed the whole country, a national seminar and international summer school on aerial archaeology were organised in 2012 by Prof. Ayşe Çalık Ross of Kocaeli University. This was the first major venture into aerial archaeology in Turkey and bears promise for future research.

### **Byzantion and Chalcedon: Topographical and Urbanistic Investigation in the light of archaeological finds and ancient sources**

**Nisan Lordoğlu** (Istanbul University, Istanbul)

Byzantion was founded on the European side of today’s Istanbul by the Megarian colonists, not so long after Chalcedon had been founded on the Asian side in the Archaic Age. These cities, facing each other across the Bosphorus, enjoyed great geopolitical power and were able to control economic and military activities between the Aegean and Black Sea Regions. This study aims to examine the founding of these two *poli* and to analyse the development of Byzantion and Chalcedon in terms of ancient urbanization processes and of the impact that the relations between the two cities had on their urban development from the time of their founding up to the Roman Imperial Period. A further aim is to examine how the two cities’ political and architectural profiles took shape in this period. In this context, the paper sets out to examine how political, economic, cultural and strategic/military relations between Chalcedon and Byzantion affected urban planning and the timing of planning measures. In terms of method, a comparison will be made between the structures mentioned in the ancient sources, the images on the coins, epigraphic, numismatic and historical data, and the remains that have been found in the course of the latest excavations in Istanbul.

### **Nicomedia as a Commercial Centre: The Evidence of Late Roman Pottery Imports**

**Emre Ekin** (Kocaeli University, Kocaeli)

Throughout history, the ancient city of Nicomedia, modern İzmit, in Northwestern Anatolia has maintained its position as a significant political and cultural center. This was due to the commanding location it had on the route between the East and the West. Within the territory of Nicomedia, archaeological surveys have been carried out since 2005, during which numerous examples of Late Roman pottery have been found. Because the findings were obtained during field surveys, their stratigraphical evaluation was not possible; instead the fragments were examined by comparing the forms of material from different regions. Initial examination revealed that the majority of red slip wares were African Red Slip Ware (LRA) and Phocaean Red Slip Ware (LRC). A small amount of Cyprus Red Slip Ware (LRD) and Çandarlı Red Slip Ware have been also identified. The scientific examination of the pottery shows that it was produced from different types of clay and coloured with shades of yellow, orange, red, brown, gray and black. The objects reveal facts about ancient trade and cultural interaction. In this study, pottery finds will be compared and evaluated with the aim of shedding light on the role of Nicomedia as a cultural and commercial center during the Late Roman Period.

### **Traces of Roman Nicomedia in Architectural Fragments found in the İzmit Area**

**Onur Girgin** (Kocaeli University, Kocaeli)

Nicomedia, located on the site of today’s İzmit, was first founded as a settlement in the Hellenistic period. The city has always been strategically important because of its commanding location and its safe harbour. Nicomedia’s important role as a center of power continued through the Roman and Byzantine periods. During these periods, several monuments; imperial, civil and religious structures were built, while a number of imperial reconstruction projects were accomplished. Among these ancient structures were the temples built for the Emperor Augustus and the Goddess Roma in 29 BC, aqueducts

built in the time of Emperor Traianus, palaces, a mint and hippodrome built by Diocletian, and the baths of Antoninus. Since 2005, in the course of the archaeological surveys of Kocaeli Province, numerous architectural fragments have been found. Among these finds, there are several column pieces, pedestals, column capitals in different orders, architrave fragments, marble pieces of *triglyph* and *geisopedes*, parts of church templons and templon piers. In this study, the structural fragments from the Roman and Byzantine periods found in Nicomedia will be described and discussed in terms of their chronological and geographical properties.

### **The Relationship between Anatolia and Southeastern Europe in the Second Half of the First Millennium B.C. Based on the Evidence of Bithynian Tumuli**

**Ali Bora** (Independent researcher, Kocaeli)

Bithynia was a region of Asia Minor that was particularly significant because of the intense interaction between cultures that took place there in antiquity. It is generally believed that an ethnic and cultural unity existed between Bithynia and Thrace in the second half of the first Millennium B.C. However, until now no archaeological evidence to support this conclusion has emerged from the eastern side of the Bosphorus. This paper proposes that the relationships and interaction between Bithynia and Thracia can in fact be effectively traced by examining Bithynian tumuli. Drawing on archaeological research and findings from Bithynia, it discusses similarities between Thracian and Bithynian tumuli. The paper suggests that the tumuli employed as burial units in Bithynia were remarkably similar to those found in Thrace, which date back to the second half of the first Millennium B.C. and which manifest the standard features of tumuli architecture. It argues, moreover, that the tumuli constructed and used in Bithynia can be dated to roughly the same period as those that emerged in Thrace.

### **Some Geoarchaeological Evaluations Related to Sea-Level Changes in Antiquity: Samples from the Gulf of İzmit**

**Yasemin Bora** (Kocaeli University, Kocaeli)

The possible effects of geological phenomena on ancient societies and their settlements is an issue which has only recently begun to be discussed among scholars studying Northwest Anatolian archaeology. Ongoing field surveys and PhD research on this area are yielding very important findings. One of the most important outcomes of these studies is the samplings obtained. The results of these samplings reveal that significant sea-level changes may have occurred in the Gulf of İzmit in antiquity. The results also lead us to speculate that, due to the sea-level changes, ancient sites lie concealed beneath the water, thus inhibiting contemporary archaeological discoveries. Around the Gulf of İzmit, the location of the ancient Gulf of Astakos next to the 'Propontis' (Sea of Marmara), specifically in areas close to the coast we have uncovered traces of some ancient settlements, the plight of which appear to have been heavily dependent on sea-level changes. Some locations manifest a number of unexplained anomalies considering the present shoreline. In this study, we will try to shed light on the effects of geological phenomena on regional archaeology, covering topics such as the tectonic movements initiated by the North Anatolian Fault, sedimentation, and the offshore and underwater topography of the Gulf of İzmit.

### **In Search of Hannibal: Lybissa in Bithynia**

**Sıtkı Serkan Güzel** (Kocaeli University, Kocaeli)

The Eastern Marmara region is a prominent area of transition through which major roads pass from Asia to Europe. Because of its strategic geography, this region, historically named Bithynia, was as important in the past as it is today, not least in antiquity. It was then that settlements of grandeur and significance flourished in this area, such as Nicomedia, Chalcedon, Prusia, Prusias ad Hypium, Claudiapolis and Nicaea. Ancient sources include descriptions of a certain site in Bithynia called Lybissa, where Hannibal, the Carthaginian military genius, died and was buried. Over the centuries, many explorers in search of Hannibal's burial place have sought to find the whereabouts of Lybissa in Bithynia, and a number of researchers have proposed theories suggesting locations for Lybissa. Nonetheless, the exact location of this site remains to be identified. In this paper, the position of Lybissa is discussed in the light of both ancient literature and archaeological surveys conducted in recent times.

### **The Representation of Local Social Life on Nicomedian Funerary Steles**

**Gül Baykara** (Kocaeli University, Kocaeli)

This poster is on the ancient funerary steles found in Nicomedia. The city of Nicomedia was not only the capital city of the province of Bithynia but also the capital of the Roman Empire during the Tetrarchy period. The poster presents and illustrates the characteristic features of Nicomedian funerary steles from the Hellenistic and Roman era, including examples that are already in the collections of the Istanbul Archaeological Museum and the İzmit Archaeological Museum as well as ones found during archaeological surveys of Kocaeli province. These steles, which are discussed and classified according to

their style and art work, material and time period, reveal information about the plastic arts of their time and specifically about Nicomedian art. The funerary steles also offer us an insight into cultural relations and demonstrate the interaction in the field of art between Nicomedia and other cultural regions.

### The Name “Nicomedeia” in Its Historical Context

**Deniz Beyaz** (Kocaeli University, Kocaeli)

The city of Nicomedia was established by Nicomedes I, the King of Bithynia, in approximately 264 BC. In his prophecy, based on an evaluation of the limbs of sacrificed animals at the time of the establishment of Nicomedia, Libanius declared that the city would be the biggest and most gorgeous city in Asia and would exist eternally. The ancient sources also refer to a miracle that is said to have taken place when Nicomedia was about to be constructed on the location of the city Astacus, which had been destroyed by Lysimachus in approximately 297 BC. According to the miracle, an eagle suddenly appeared and grabbed the flesh of the sacrifice. Together with a snake that emerged from the ground, it started to march across the Gulf and then arrived at the hillside where present-day Izmit is situated. This legend has been construed as indicating that the gods wanted the city to be established in that location. Indeed, Nicomedia was founded there and a huge construction movement got underway, so much so that the city came to be the glorious city of Bithynia at the time of the Kingdom of Bithynia.



### T01S017 - REFUSE, RE-USE AS TRACES OF MIGRATION

**Organizers:** Christina Rosén (National Heritage Board, UV Väst, Mölndal), Jette Linnaa (Antiquarian Department, Moesgård Museum, Højbjerg)

Migration is a much discussed topic all over Europe today as well as something present in most historical periods. How do we trace migration in the archeological record? Where to look for traces? Human migration is historically well-researched, but still a little-touched upon topic within the field of archaeology. Early modern migration meant an exchange of people, objects and ideas with wide-ranging consequences for host communities as well as homelands. Some meetings were peaceful; others were conflict-ridden. The migrants came with different agendas and aims: as conquerors and colonizers, traders; economic, politic and religious refugees. And they were met with different responses ranging from official welcomes to conflict and resistance. This session will focus on how materiality was connected or shared for people or groups embedded in relationships across borders, stressing how the identities and agency of immigrants were shaped by space and place. The session touches upon concepts of otherness and translocality, marginalization, transformation, segregation, assimilation and the conquering of mental and physical space, all through interactions with materiality. The starting point is research into strategies through materiality, which include studies of consumption, food ways, refuse and waste disposal pattern and other signs of ordering of space. The session's primary focus is on medieval and post-medieval times, but we also welcome papers dealing with contemporary or prehistoric archaeology.

### ORAL PRESENTATIONS

#### Migration, Innovation, Exchange: Comparing “Placed Deposits” in Early Medieval Northern Europe

**Clifford M. Sofield** (The Queen's College, University of Oxford, Oxford)

Migration and interregional contact characterized the early medieval period in northern Europe, from the large folk movements of the fifth and sixth centuries A.D. to the flourishing of North Sea and Baltic Sea trade in the late seventh through ninth centuries. Although interregional networks are thought to have been instrumental in ethnogenesis, state formation, and the emergence of elites, the impact of migration and exchange on the lives of ordinary people in rural settlements is not fully understood. ‘Placed deposits’ offer a new approach to answering that question. In rural settlements of early medieval northern Europe, placed deposits often consist of ordinary domestic material—animal remains, pottery, loomweights and other artefacts—carefully laid at boundaries, beneath doorways, or within abandoned buildings. As a household tradition, placed deposition is deeply rooted in ancestral practices and belief systems, but as a ‘technology’ intended to achieve practical results in ordinary domestic situations, it can also reflect innovation and the exchange of ideas. By tracing a few common patterns of placed deposition across the North Sea region, this paper begins to assess the relative impact of migration, exchange networks, and local innovation on everyday life in early medieval northern Europe.

#### Rural Disposal Patterns during Migration in Medieval Germany

**Greta Civiš** (University of Vienna, Vienna)

Around 1200, a large number of settlements were founded by settlers in Brandenburg, Germany. Diepensee is an excellent example of a village which developed rapidly by migration of settlers from the west and was already described as “desertum” in 1375. It was almost completely excavated in the 2000s and is at the moment subject of a research project. The

archaeological record correlates very well with findings from western Germany. In my PhD project the way(s) how refuse was perceived and dealt with are examined in the village. The paper compares these results with archaeological evidence from western Germany from the 12th and 13th century. Apart from the role of material discard as an element structuring and designing landscape in a settlers' society I will ask if and how these practices differ between medieval villages in Brandenburg and the supposed area of origin. The practice of disposal is interpreted as an expression of incorporated Habitus. Therefore, the development of Habitus in a migration situation becomes subject for research.

### **Reuse and Refuse in Diaspora Communities in Early Modern Denmark**

**Jette Linaa** (Moesgaard Museum, Aarhus)

Early Modern Denmark saw the formation of large and smaller immigrant communities of crafters, industrial workers and merchants from primarily the Netherlands and Germany. Many of the communities were formed through royal initiative. The aim of this paper is to compare the use and spread of material culture within these communities and between the communities and the native population.

### **Tracing Migrating Foodways in Urban Refuse - A Case Study from Western Sweden**

**Kristina Carlsson** (Swedish National Heritage Board, Gothenburg), **Christina Rosén** (Swedish National Heritage Board, Gothenburg)

The way we cook, eat and drink is deeply rooted in our identity and form an important part of habitus. Therefore, foodways are often brought along when migrating and sometimes upheld for generations. Foodways can be traced in refuse in the form of broken cooking, eating and drinking vessels as well as in archaeobotanical and osteological evidence. Documentary sources speak of food import and can give insights in what kinds of food different groups of people preferred. By looking at evidence of food and cooking in two Western Swedish towns (c. 1500–1700) we will discuss how food and drink were used as a way of forming and negotiating an identity in migrating groups. Why and when was it important to mark one's origin? Were some foodways lost or reinforced when migrating? Did the import of exotic food increase or change in times when inhabitants from other areas settled in towns? For how many generations were certain ways of eating maintained? Can we see a difference between permanent and temporary migration? These and similar questions will be dealt upon in our paper.

### **A Home away from Home**

**Andrine Nilsen** (University of Gothenburg, Gothenburg), **Mattias Öbrink** (University of Gothenburg, Gothenburg)

In the early modern period (16th–17th centuries) Scandinavian towns had large non-Scandinavian populations. They were mainly of German and Dutch descent. What traditions did immigrants bring along with them and how much did they adapt to the new Scandinavian built environment? The main aim is to discuss if, and how, their building customs differed from local traditions. This could include the use of building materials, design, layout, functions and building techniques. The discussion is dependent on having considered other topics, such as: Is it possible to distinguish a foreign household from a local one? How do we use the archaeological data to find this group of people in society? How did immigrants influence the local building traditions, material culture and consumption? These questions include both direct interaction and long term change. The discussion will use examples from towns in Scandinavia, and beyond.

### **Finding the People behind Material Culture**

**Lene Høst-Madsen** (Skanderborg Museum, Skanderborg)

Finding the people behind material culture and understanding social structures of previous societies is some of the most important aims of archaeology. The direct interpretation and documentation that archaeological methods provide to objects makes it possible to illuminate important aspects of life, which cannot be obtained by other means, especially when it comes to documentation of the materiality of the impure, the poor and the unknown. The finds from 18th century waterfront excavations of refuse dumps in Copenhagen form a very strong archaeological source material regarding urban material culture. Here we have the rich and the poor, the common and the unique. Refuse is matter out of order. Items are taken out of context when they are thrown away. But still the material contains loads of information both about the use of the single object and in the bigger picture about the consuming habits and the formation processes of the large scale waterfronts fillings of the city.

### **Industrial Identities in Australia's Little Cornwall**

**Catherine Frieman** (Australian National University, Canberra), **Ash Lenton** (Australian National University, Canberra), **Sally May** (Australian National University, Canberra)

In 1859, copper was discovered in a wombat burrow on a failing sheep station on the Yorke Peninsula, South Australia; by the 1870s, the region was the world's largest producer of copper and the population neared 20,000. Most of these men and women were part of a deliberately imported Cornish diaspora, and the mineral extraction was carried out according to established Cornish systems through the use of Cornish mining infrastructure. A sense of Cornishness remains a major



feature in heritage and historic activities in the area. Yet, despite industrial landscapes designed on the Cornish model and the retention of distinct patterns of speech and foodways, these were dynamic communities who developed a host of new social, political and technological means of adapting to the harsh environmental and industrial conditions on the Peninsula, particularly in domestic contexts. In this paper, we will examine the tension between the industrial spheres planned by mine owners and the ad hoc settlements which surrounded them. We will explore the nature of Cornishness as it was (and continues to be) displayed in 'Australia's Little Cornwall' and we will address the ways people altered their domestic space to create a uniquely Cornish-Australian way of life.

## POSTERS

### Migrations and Diffusions in the Povolzhye Neolithic and Eneolithic

**Mariia Vybornova** (Samara State Academy of Social Sciences and Humanities, Samara), **Aleksandr Vybornov** (Samara State Academy of Social Sciences and Humanities, Samara)

The culture of flat-bottomed pottery made of silt is presented in Lower Povolzhye (6200-5800 BC). This pottery has a geometric ornament. At that time the culture with other characteristics develops in Middle Povolzhye, namely, pointed-bottom pottery made of silty clay with hollow and scratch ornament on the surface. In 5900 BC some sites with syncretic pottery appear on the border of these regions. Migration is proved by technology of pottery manufacture and peculiar ornaments. The reason of migration can be explained by aridization. In 6200 BC the pottery of elshanskiy type with another production technology comes from forest-steppe Povolzhye. Flint appliances also differ from the previous ones. Diffusion is supported by the existence of intermediate links. In 5000 BC the Eneolithic khvalynskiy culture with different pottery and specific flint appliances develops in Lower Povolzhye. Later similar pottery and tools appear on the sites in Middle Posurie 1300 km away from the main territory. Migration is proved not only by typology, but also by raw materials and technology of artifact production. Its reason consists in the type of household and changes of climate. RGNF - 13 -11- 63005 a (R).

### Differences of Hunting Strategies at Old Town Barilović from Late Medieval to Modern Ages

**Tajana Trbojević Vukičević** (Department of Anatomy, Histology and Embryology, Faculty of Veterinary Medicine University of Zagreb, Zagreb), **Agata Kučko** (Department of Anatomy, Histology and Embryology, Faculty of Veterinary Medicine University of Zagreb, Zagreb), **Ana Azinović Bebek** (Division for Archaeological Heritage, Croatian Conservation Institute, Zagreb)

At the Old Town Barilović, which is situated on a hill above the Korana river in central Croatia, the three stages of life were determined: feudal Late Medieval phase (15th, 16th century), Military Frontier phase (17th - 19th century) and recent phase (end of 19th century till end of 20th century). From previous studies of animal remains, it is evident that in nutrition of the population in all three phases dominated cattle (% NISP 50-65), followed by small ruminants and pigs. However, the proportion of species of wildlife, have changed over the period of settlement. In the first phase, most of the remains belong to red deer and roe deer, a substantial proportion to wild boar and rabbit, and a few remains of bears and beavers were found. At the stage of the Military Frontier, share of red deer and roe deer slightly falling, while the number of bone remains of wild boar and rabbit grows. In recent phase, only bones of roe deer were found. It can be concluded that with changing of population the habits of hunting also change, while the abundance of certain species of wildlife are obviously influenced by the changes in the environment, especially after 19 century.



### T01S018 - SEAS OF ENCOUNTERS – MAPPING COLONIAL IMPACTS ON INDIGENOUS LANDSCAPES

**Organizers: Till F. Sonnemann** (Leiden University, Leiden), **Corinne L. Hofman** (Leiden University, Leiden)

From the 15th century onwards the "age of encounters" brought Europeans in contact with indigenous peoples all over the globe. The initial establishment of trading hubs had often substantial impact on the life of the local indigenous population. While it facilitated the exchange of materials and knowledge, the contact also boosted the spread of diseases and brought turmoil, from which many indigenous societies never recovered. The early colonial period altered local settlement patterns and transformed social and cultural landscapes significantly. We would like to bring together researchers who investigate early encounters between Europeans and indigenous populations worldwide, focusing particularly on the indigenous side. Is the impact on the indigenous populations traceable in the archaeological record? How can eventual societal changes be identified? What has remained of the pre-colonial social and cultural landscapes? What measuring and evaluation techniques have it made possible to map and analyze this period? With focus on the technical aspects of the research, this session is explicitly kept open for varying methods, which trace these encounters in landscape and provenance studies. The methodology can range from RS to analyze landscape transformations, excavations and prospection techniques, over provenance studies that trace back the origins of objects and materials.

## Introduction to the Session “Seas of Encounters”

**Corinne L. Hofman** (Leiden University, Leiden), **Patrick Degryse** (KU Leuven, Leuven), **Till F. Sonnemann** (Leiden University, Leiden)

From the 15th century onwards, the „age of encounters“ brought Europeans in contact with indigenous peoples all over the globe. In the introduction to the session, in which we asked for contributions regarding different methods to map this encounter all over the world, we would like to discuss the current research aspects concerning the Caribbean, advanced by two international and interdisciplinary European Research Council grants which started in 2013. The research focus is on the period before and after the arrival of Europeans in the Caribbean, particularly on the Greater (ERC-NEXUS1492) and Lesser (HERA Carib) Antilles, and how the encounter with indigenous people impacted their culture and transformed the Caribbean landscape. The European seafaring nations had diverse approaches to interact, and often subdue the local population for their needs in establishing trading hubs, gold and silver mines, and plantations. The initial contact by the Spanish was followed by Dutch, English and French merchants and fortune seekers, and led to enslaving, resettling, and heavy clashes with the local population. We would like to use the introduction to discuss different methods used to map and analyse this encounter, and how the work will reach out to research conducted worldwide.

## Revisiting the “Fatal Impact”: First European Contacts in the Pacific and Their Consequences on Traditional Settlement Patterns

**Christophe Sand** (Institute of Archaeology of New Caledonia and the Pacific-IANCP, Nouméa), **Ian Lilley** (University of Queensland, Brisbane)

For a long time, ethnographic studies have depicted the traditional societies of the Pacific Islands as “out of History”, the depiction of their supposedly ‘primitive’ organisations being mainly useful to help reconstruct what the dawn of European civilisation might have looked like. Archaeological studies in the region has since half a century totally revised this assumption, by showing a unique set of dynamic processes at play during the long occupation of Oceania by its indigenous people, characterized during the last millennium before European contact, by a set of massive intensification processes. This has necessitated to approach in a new way the ethnographic data of dispersed populations and low demographic pools that appeared to characterize most of the societies of the region at the end of the 19th century. This paper will discuss these issues, by showing the massive impact of first European contacts on the demography of Pacific Islanders and the consequences of pre-colonial population collapses on the traditional settlement patterns across the region.

## Miniscule Evidence of a Cultural Footprint - Remote Sensing Late Pre-Columbian Landscapes in the Caribbean

**Till F. Sonnemann** (Leiden University, Leiden), **Eduardo Herrea Malatesta** (Leiden University, Leiden), **Jochem Lesparre** (Delft University of Technology, Delft)

Before 1492, settlements in the Caribbean were predominantly made of wood and clay, of which little evidence is today visible to the eye. Tropical haze obscures the view from above, and dense vegetation cover ceramic distributions and middens, which are the predominant evidence of Amerindian settlement patterns in the Leeward Islands. In the Greater Antilles, there is evidence that Amerindian people transformed the landscape by raising small mounds, as well as leveling areas to construct large wooden buildings. Due to the vicinity to water or easy access to the sea, often, the colonial and modern urban development later occupied and transformed the same areas. What is the archaeological evidence of the pre-Columbian period in the Caribbean, and what sensors are best for identifying landscape transformations and settlement patterns? The discussion will cover different remote sensing methods used in combination with onsite analysis such as field walking and (potentially) geophysics on the Leeward Islands and in the northwestern Dominican Republic. The purpose of the investigation is to uncover and understand the pre-Columbian landscape, to distinguish it from changes that have occurred since arrival of the Europeans.

## From One Conquest to another? Colonisation and Agrarian Practices in the Iberian Peninsula and the Americas (15th-17th centuries). A Comparative Approach

**Felix Retamero** (Autonomous University of Barcelona, Barcelona), **Inge Schjellerup** (National Museum of Denmark, Copenhagen)

There were many “filiations”, as stated by Ch. Verlinden, between the Mediterranean and the Atlantic colonial experiences. We’d like to present a research project focussed on the agricultural practices resulting from the Christian conquest of al-Andalus (known as Reconquista) and those of the early colonial America. The target is to describe and explain the practices implemented after these conquests on the basis of case studies from different contexts. These studies will adopt a comparative perspective with which to create a synthesis of agrarian practices emphasizing the resulting permanences and changes. This will make use of both written sources and the archaeological record. Agrarian practices will be approached

from a wide perspective, and attention will be paid to the transformations introduced to agricultural management by different social systems. These studies will therefore focus on the location, size and shape of agrarian spaces; the choices concerning animal and plant species; the ancient and new agricultural calendars; the techniques and tools used before and after the conquest; the working regimes, etc. This knowledge will provide comprehensive empirical data on which to base the comparative analysis of agricultural practices and the social orders built around them in the aftermath of the conquests.

### **New “Indigeneity” and the Legacies of Colonialism**

**Krish Seetah** (Stanford University, Stanford), **Saša Čaval** (ZRC, Ljubljana), **Diego Calaon** (University of Ca’ Foscari, Venice)

In contrast to settings that underwent colonial interactions between indigenous and non-local actors, Mauritius had no autochthonous population. However, are the legacies of colonial exploitation any less relevant for this, and similar, recent nation? This paper presents an exploratory study, aiming to contextualise ecological outcomes of colonisation on ‘pristine’ environments. We present how climate proxy data can be crucial, not only for assessing colonial climate degradation, but also for engaging with de-colonized states. What did newly independent governments start with, and how been the outcomes of their policies? Most significantly, how can this approach to archaeological endeavour help make archaeology relevant?

### **Mapping Continuity and Change in Burials Practices across the Historical Divide: Evidence from the Pre-colonial and Early Colonial Caribbean**

**Menno L.P. Hoogland** (Leiden University, Leiden), **Roberto Valcárcel Rojas** (Leiden University, Leiden), **Corinne L. Hofman** (Leiden University, Leiden)

Over the past two decades we have developed a multidisciplinary approach to the study of burial assemblages from the pre-colonial and early colonial Caribbean. This approach combines archaeological, bioarchaeological, ethnohistoric, and ethnographic data to document the demography, health conditions, subsistence, kinship relations, mobility patterns, and mortuary behavior of these populations. Within the study of mortuary behavior, particular focus is laid on archaeothanatology, i.e. the reconstruction of the ritual context in which burial data are created and the cultural processes that have influenced the skeleton within the grave. With this perspective it is considered that mortuary behavior can leave potentially recognizable “taphonomic signatures” indicative of the anthropogenic manipulation of skeletal remains such as the removal of skeletal elements, the rearrangement of the skeleton or mutilation and intentional breakage of bones. This paper focusses on two large indigenous burial assemblages from the pre-colonial and early colonial period in the Lesser and Greater Antilles, Anse à la Gourde, Guadeloupe and Chorro de Maita, Cuba, and maps the continuity and/or transformations in treatment of the dead at the advent of European colonisation.

### **Assessing the Impact of European Colonialisation of the Caribbean by Provenancing Artifacts and Humans: Nexus 1492**

**Gareth Davies** (VU University Amsterdam, Amsterdam), **Janne Koornneef** (VU University Amsterdam, Amsterdam), **Jason Laffoon** (Leiden University, Leiden), **Laura Font** (VU University Amsterdam, Amsterdam), **Alice Knaf** (VU University Amsterdam, Amsterdam), **Esther Plomp** (VU University Amsterdam, Amsterdam), **Ulrik Brandes** (University of Konstanz, Konstanz), **Corinne L. Hofman** (Leiden University, Leiden)

This research addresses the immediate and lasting effects of the colonial encounters on indigenous Caribbean cultures and societies to determine the intercultural dynamics that took place during and after the arrival of Columbus in 1492. To achieve these goals, changes in space and time of the circulation of materials and artefacts need to be quantified along with changes in human mobility and dietary patterns. Diet and provenance are documented using coupled C-N-O-Sr isotope analyses. Strontium isotope data provides limited spatial resolution for human provenancing in island environments, hence Pb and Nd isotope techniques are being validated, including the development of Sr-Nd-Pb isoscape maps. The unique nature of many artefacts means essentially non-destructive sampling techniques are required for (isotope) geochemistry. Thus, a portable laser ablation system is used to sample artefacts in collections in Europe and the Caribbean. This approach, coupled with recently developed sub nanogram Sr-Nd-Pb isotope methodologies, provides the possibility to use geological and isoscape maps to determine provenance for subsequent analysis by the latest network science methodologies to establish how complex cultural interactions changed and evolved over time following asynchronous European colonialisation of the Caribbean.

### **Socially Plausible Island Networks in the Caribbean**

**Viviana Amati** (University of Konstanz, Konstanz), **Termeh Shafie** (University of Konstanz, Konstanz), **Emma Slayton** (Leiden University, Leiden), **Angus Mol** (Leiden University, Leiden), **Menno L.P. Hoogland** (Leiden University, Leiden), **Corinne L. Hofman** (Leiden University, Leiden), **Ulrik Brandes** (University of Konstanz, Konstanz)

We propose a method to generate possible contact networks in the Caribbean. Unlike previous models based largely on



the assumption of dyadic independence, we use Exponential Random Graph Models (ERGMs). Motivated by the sociological concepts of network closure and structural holes, we introduce new triadic effects to account for dependencies among ties and to model the intra- and inter-island exchange flow. Using data-driven estimates of travel distances between settlements dating back to the historical divide (AD 1000-1800), we illustrate the applicability of the model and reconstruct possible contact networks in the Caribbean.

### **Indigenous Rock Art Responses to European Encounters in the Southern Kimberley of Northwest Australia**

**Jane Balme** (University of Western Australia, Crawley), **Sue O'Connor** (Australian National University, Canberra)

Indigenous rock art responses to European encounters in the southern Kimberley of northwest Australia. In Australia Indigenous rock art images document some of the earliest encounters with non-Indigenous peoples. Images of European watercraft, objects, people and animals were common cultural responses to European exploration and later settlement of the continent. However, in the southern Kimberley of northwest Australia, European motifs are rare in the Contact rock art. Instead rock art associated with the first European contact seems to mainly emphasize group identity - more so than in immediate pre-Contact times. In contrast, European motifs represented in one rock art panel in the region can be interpreted as a representation of individual identity. The southern Kimberley had a particularly violent Contact period and we relate the overall lack of European motifs as a response to this violence. The expression of individual identity reflects new social structures that emerged from European settlement of the region. The diversity of responses to European arrivals represented in rock art both across Australia and within a single region of Australia, reveals the effect on motif choice of the nature of relationships between the Indigenous and new peoples. The example of the southern Kimberley also demonstrates the difficulty of identifying Contact period rock-art primarily on the basis of the presence of European motifs.

### **Islands of Encounter - Forts and Fortification in East Timor**

**Andrew McWilliam** (Australian National University, Canberra), **Sally Brockwell** (Australian National University, Canberra), **Sue O'Connor** (Australian National University, Canberra)

The remains of fortified walled structures abound in remote hilltop locations in the contemporary landscape of Timor-Leste. Recent archaeological investigations indicate that one of the key drivers for processes of fortification was the advent of European colonialism from the late 16th Century, especially Portuguese and later Dutch trading interests. From this period Timorese political communities developed extensive fortified settlement sites in response to endemic rivalries and warfare with external and internal enemies to protect their lucrative trade with Europeans and neighbouring Sulawesi based traders in sandalwood, slaves and beeswax, in exchange for exotic goods such as glass ware and ceramics, guns and gunpowder. Many of the Timorese forts were inhabited until recent times and remain sites of periodic sacrificial veneration of ancestors for contemporary communities. In this presentation we report on the results of a series of archaeological and ethnographic investigations into processes and practice of fortification in Timor-Leste, focusing on the far eastern region of the island and highlighting the diverse impacts of the colonial encounter on East Timorese culture and landscapes.

### **Archaeological Traces of the Catalan Conquest of Mallorca (1229): Refugees, Hiding Places and Deserted Settlements**

**Helena Kirchner** (Universitat Autònoma de Barcelona, Barcelona), **Miquel Barceló** (Universitat Autònoma de Barcelona, Barcelona), **Mateu Riera** (Universitat Autònoma de Barcelona, Barcelona), **Jaume Deyà** (Archaeologist), **Pablo Galera** (Archaeologist), **Eugènia Sitjes** (Universitat Autònoma de Barcelona, Barcelona)

The Catalan conquest of the island of Mallorca began in december 1229. Three months after the main part of the island was subdued. A biographical chronicle of king Jaume I of Aragon, prime mover of the military expedition, occupation and feudal colonization of the island, describe the attacks against civil population of Madīna Mayūrqa and rural settlements and how survivors were captured. The Catalan conquest meant the disappearance of the Andalusian society that since the 10th century had consolidated a dense net of rural settlements often associated to irrigated areas. The documentary and archaeological research show the selection of settlement areas resulting from Arab and Berber migration from the oriental coast of the Iberian Peninsula. The immediate impact of the Catalan conquest is highly visible from the archaeological point of view in the massive abandonment of rural settlements. And it's even possible to describe the flight of the population that improvised refuges in caves, cliffs and mountainous areas where desperate attempts of resistance were organized. Some archaeological examples will be shown.



### **T01S019 - A GLOBALISATION OF DEATH? RE-INTERPRETING BURIAL PRACTICES OF THE EASTERN AEGEAN, 9TH-4TH CENTURIES BC**

**Organizers:** **Anja Slawisch** (Deutsches Archaeologisches Institut, Istanbul), **Yaşar Erkan Ersoy** (Hitit University, Çorum)

Island and mainland, polis and oikos, necropolis and mausoleum, ash and body: these oppositions frame the design of this avowedly comparative session. The workshop will bring together researchers from different countries working on the

archaeology of death in the Aegean during an era of great historic change, namely the period from the 8th to the 4th century BC. The background is shaped by extensive migrations and colonisations, wars, periods of economic crisis as well as flourishing sea-trade, the emergence of 'international' sanctuaries and growing populations. For decades our knowledge of burial customs within the eastern Aegean during that period has been rather limited. Recent discoveries have, therefore, the potential to dramatically change our picture of funeral rites as well as on the impact of wider historical events on the way people were buried. The emphasis will also lie on the comparison and interpretation of archaeological assemblages with regards to choice of place, choice of materials and key historical turning points. Can we identify patterns in the location of burial places (both 'ordinary' and 'monumental') in relation to other sites, whether urban spaces, sanctuaries, harbours or roads? Does the new evidence allow us to identify 'global' East Mediterranean, Greek or Aegean practices or are regional and local traditions more important?

## ORAL PRESENTATIONS

### **Klazomenai during the Iron Age and Archaic Period (10th through Early 5th century BC): Organization of the Settlement and Changing Shifts of the Burial Grounds through Time**

**Yaşar Erkan Ersoy** (Hitit University, Çorum)

As one of the leading centers in North Ionia, Klazomenai stands at the forefront in the Eastern Aegean basin for providing rich array of archaeological data related with mortuary practices as well as domestic quarters and finally crafting installations. In this presentation, an overview of the burial grounds, their spatial relations with the settlement as well as motivations that had an impact for changes will be analysed by making comparisons with sites in the Aegean. One must stress the fact that, Klazomenai has such a unique position in Ionia because of such a diverse evidence gathered from cemeteries. As the recent excavations suggest, formation of the extramural cemeteries that were dotted all around the outskirts of the ancient site seem to have been crystallized in the middle of the 7th century BC, following the construction of the defense system.

### **The Re-Interpretation Burial Customs of Clazomenae in the Iron Age and Archaic Periods**

**Polat Ulusoy** (Muğla Sıtkı Koçman University, Muğla)

There are at least one Protogeometric Period burial ground and seven Archaic Period necropoleis in Clazomenae. The present work is a study on the burial customs of Clazomenae in the Protogeometric, Geometric and Archaic Periods with a special focus on mortuary practices, grave numbers and grave types for each individual cemetery in the city. The main questions that will be discussed in this paper are: What is the frequency of burials and burial grounds in different periods and phases in the city? To what extent was there continuity of use of individual burial grounds? The major aims here is to collect the specific grave information and try to interpret them. Another crucial aim of this paper is to understand and discuss the relationship between settlement and necropolis/burial grounds at different periods, the significance of extension, the developments and changes of burial customs in Clazomenae and to compare the results with examples from the Eastern Aegean and Mainland Greece.

### **Performing Death Rituals in Ionia and the Colonies: Klazomenai, Teos and Abdera**

**Bilge Hürmüzlü** (Süleyman Demirel University, Isparta)

Since the early twentieth century many different analyses and interpretations of the ancient and modern funerary rituals has been developed by archaeologists, ethnographers and anthropologists in order to understand the social structure of the groups who practiced them. The results of research and excavations in recent years in Ionia allow us construct the "mortuary practices" and their effect on "intercultural relations" and "memory" of the Ionian communities. Studies of the grave offerings, burial types and anthropological analysis of the human remains provide important information on diachronic changes in burial customs and thus reflect aspects of the ancient Ionian society. Comparisons of the evidence from Ionia is important to understand the power of symbolism and memory in mortuary practices, which lasts even after political, structural, religious and societal changes. The mechanism of mortuary practices in general and how this worked in Ionia and the Ionian communities outside the region, will be the subject of this paper. We will find the opportunity to compare the evidence from two mother cities and their colony Klazomenai, Teos and Abdera; and discuss how the burial rites transferred from mother cities to their colonies, thus shifting the cultural relationships of these settlements in the Archaic Period.

### **Tumuli as Landmarks: Political Landscapes of Teos and Klazomenai**

**Elif Koparal** (Hitit University, Çorum)

As a mortuary practice tumuli were used in a considerably wide geography and a long time span. Even though they were significant elements of the deathscapes, they also generated landmarks that shaped the political landscapes of places. The

archaeological surveys conducted at the territories of Teos and Klazomenai yielded to the discovery and documentation of numerous tumuli. The distribution and the use of those tumuli shed light on the discussions focusing on the formation of political landscapes at those Greek city-states remarkably. Such evidence perhaps enables us to discuss the similarities and the differences between Teos and Klazomenai within the context of deathscapes and political landscapes. Beyond Ionia such evidence provides us with a comparative approach towards different geographies and different uses of tumuli.

### **A Great Late-Archaic Tumulus of Aeolian Kyme between Greeks, Persians and Lydians**

**Stéphane Verger** (Ecole Pratique des Hautes Etudes-Paris, University of Calabria, Paris)

The city of Aeolian Kyme, its harbour and its whole territory are dominated by a high hill that is topped by a large tumulus. This tomb was looted in the 2000's and excavated in 2012, as part of the activities of MAIKE. The mound is 50 meters in diameter and 8 meters high. It is dated to the early fifth century BC. The central tomb is a large limestone sarcophagus that has been emptied by the looters. It still contained a gold ring with a carnelian gem decorated with an erotic - and probably mythological - scene. The tomb evokes the archaic necropolis of Sardis because of the monumentality of the burial mound. The sarcophagus and the ring are clearly Greek. The period of the construction corresponds to that of the Persian domination of the city. This is the tomb of an important dignitary, one of the leaders of Kyme at the time of the Persian wars. We will propose some hypothesis about the identification of the deceased. The iconographic interpretation of the decoration of the gem provides some important informations on the political, cultural and perhaps religious situation of the Aeolis in the early fifth century BC.

### **The Necropoleis of Ancient Chios: Burial Customs and Funerary Practices from Protogeometric to the 4th c. BC**

**Nikolaos Doulobekis** (20th Ephorate of Prehistoric & Classical Antiquities, Hellenic Ministry of Culture, Mytilene), **Sofia Lemani** (20th Ephorate of Prehistoric & Classical Antiquities, Hellenic Ministry of Culture, Mytilene), **Despina Tsardaka** (20th Ephorate of Prehistoric & Classical Antiquities, Hellenic Ministry of Culture, Mytilene)

The strategic location of Chios between Mainland Greece and the west coast of Anatolia has placed the island at the crossroads of civilization for millennia. The last thirty years archaeological investigation denotes that the current town has little expanded from the original site of the ancient settlement. The walls, however, that according to textual sources once surrounded it have not as yet been discovered. The topography of ancient Necropoleis, which were customarily situated outside city proper, plays a significant role in defining the ancient city's boundaries throughout Antiquity. In this paper we explore the location and density of the burial grounds used at different times and over a period of several centuries, variations in burials typology, the relation between rich and modest grave goods as well as the funeral rites, shed light on aspects of ideology, social and economic realities from Protogeometric to the 4<sup>th</sup> c. BC and place them within the context of the wider East Aegean. In this respect the images of the dead help to identify traditions, trends, distinct traits and choices of the living in a dynamic world of changing identities.

### **The Archaic and Classical Mortuary Patterns on Tenedos**

**Turan Takaoğlu** (Onsekiz Mart University, Çanakkale)

The small island of Tenedos (Turkish Bozcaada), located on the mouth of the Dardanelles Strait just west of the coastline of ancient Troy in the Troad, yielded a great body of mortuary evidence particularly regarding both Archaic and Classical periods. This strategically important small island apparently acted as a base site or shelter for ships before they made their ways to the Sea of Marmara (ancient Propontis) and into the Pontus Euxinus (Black Sea) when the wind conditions permitted a safe passage through the Dardanelles Strait in Archaic and Classical periods. The major center of population was located on the easternmost point of the island near small bays which apparently served as natural harbors for landing ships. Salvage excavations undertaken in early 1960s and then in early 1990s in the necropolis of this major center of population of Tenedos yielded a great body of mortuary evidence. Because Tenedos is located in a liminal zone among western Anatolia, the Aegean islands and the Thrace, mortuary patterns demonstrate variability and diversity even in a single period. The geographic position of the island apparently provided an opportunity to examine the mortuary patterns in more detail in relation to cultural interactions and trade.

### **Burial Traditions of Antandros in Archaic and Classical Periods**

**Gürçan Polat** (Ege University, Izmir), **Kahraman Yağız** (Ege University, Izmir)

Antandros is located in the Troas region in Northwest Anatolia, at the southern foot of Mount Ida. One of the excavation areas of Antandros is necropolis. The necropolis which has stratified structures was densely occupied from the late 8th century BC to the 1st BC. Although the intensive use of the necropolis over a long period caused the demolition of the early graves by graves of later periods, there is sufficient significant information concerning the development of the burial tradition in Antandros necropolis. The remarkable point concerning burial traditions is that, while it was tradition to cre-

mate adults until the first half of the 6th century BC, beginning from the second half of the 6th century B.C. adults were sometimes, though rarely, buried without cremation. The change in burial traditions can be seen in cremation graves being few in number throughout the 5th century BC. A striking discovery made in Antandros was to see cremations together with inhumation burials in sarcophagi used as family graves. The fact that there were no cremation burials in the 4th century BC points out that the change in burial traditions had been completed by the end of the 5th century BC.

### **The South Necropolis of Samothrace: Topos Hieros or an Ordinary Cemetery?**

**Petya Ilieva** (Bulgarian Academy of Sciences, Sofia)

The South Necropolis of Samothrace, situated in an immediate proximity to the renowned Sanctuary of the Great Gods, offers a number of peculiarities in regard to its location, grave equipment and sudden change of burial customs in the 4th c. BC. The nature of the grave equipment from the Archaic period implies that, contrary to the established practice in the Greek world where the sanctuaries are recipients of votive offerings including luxurious ones, in the case of Samothrace the cemetery was a focal point for luxurious items rather than the nearby Sanctuary. The presence of chronologically distanced graves with post-mortem mutilation adds another unusual, for a colonial cemetery, feature. I argue that these aspects of the Archaic period graves reflect the co-existence between the native Thracians and the Ionian settlers which led to the emergence of the hybrid “Samothracian” Greek identity. The conservatively applied cremation burials during the 6th and 5th centuries BC, the numerous ceramics and the metal finds discovered in the South Necropolis suggest that local traditions and regionally developed contacts characterised the activities of the Archaic Samothracian community rather than a wider Aegean connection.



### **T01S020 - MAKING BOUNDARIES VISIBLE: EXPLORING METHODS AND TECHNIQUES FOR INVESTIGATING BOUNDARIES IN THE ARCHAEOLOGICAL RECORD**

**Organizers: Attila Gyucha** (Hungarian National Museum Center for National Heritage Protection, Budapest), **Danielle J. Riebe** (The University of Illinois at Chicago, Chicago)

Boundaries between groups of people exist in a variety of forms and at various scales. Although they can be natural or artificial, ephemeral or long-lasting, one aspect that all boundaries share is the necessity of people in their construction, acknowledgement and conscious or unconscious maintenance. While some boundaries are easily identified, discerning intangible socio-cultural boundaries relies heavily on the archaeologists’ ability to note changes in the material culture. Anthropomorphic activities including craft production, are socially driven and as such, the artifacts become imbued with evidence of human behavior and ideology. Through a multidisciplinary approach, archaeologists can more precisely investigate and better understand the relationship between people and boundaries. Though anthropologists have extensively studied boundaries in the past and the present, this session challenges professionals to think about boundaries as constantly changing phenomenological concepts that require innovative techniques, methods and approaches to understanding how boundaries formed and altered over time and space. Papers in this session study the identification of boundaries by means of various analytical methods and at different scales – including households and property boundaries to sociocultural and political boundaries – both in prehistory and history. In addition to archaeology, studies from the fields of history, ethnography, and ethnoarchaeology are also welcomed.

### **ORAL PRESENTATIONS**

#### **Introduction**

**Attila Gyucha** (Hungarian National Museum Center for National Heritage Protection, Budapest), **Danielle J. Riebe** (The University of Illinois at Chicago, Chicago)

In the introductory presentation we summarize the aim of the session, and will give a brief overview of the development and challenges of the concept of boundaries in archaeology. The paper will also review the various perspectives and approaches employed in the papers of the session.

#### **Identifying or “Creating” Boundaries in Late Bronze Age Toumba Thessaloniki**

**Vlora Evangelia** (Aristotle University of Thessaloniki, Thessaloniki)

The emergence of structures of social complexity as well as of distinct identities among groups inhabiting the LBA tell settlements in Central Macedonia has become a main issue in archaeological discourse. For the moment, the strongest indication, for the existence of differentiation among groups occupying the buildings that have been excavated in some settlements of the region, was their economic autonomy. In the same time though there is evidence suggesting the existence of strict rules regulating life inside the community. Strict spatial organization reflects these rules that probably kept settlements in small size and imposed their distinct and strict boundaries. The engagement of varied forms of material culture,

including pottery, in the emergence of separate identities among LBA households may be detected through the study of their circulation and consumption inside different buildings. A comparative study of the morphological and technological characteristic of handmade pottery between three buildings from the site of Thessaloniki Toumba and the following of its spatial distribution inside each building provides useful information about the ability of separate households to access specific types of vessels. Finally, the use and display of these vessels could signify a desire for differentiation and the manifestation of distinct social identities.

### **Going the Distance: Measuring Interactions and Boundaries through the Stylistic and Compositional Analysis of Ceramics on the Great Hungarian Plain**

**Danielle J. Riebe** (University of Illinois at Chicago, Chicago)

Boundaries between peoples are not always as apparent as the Great Wall of China. Sometimes they occur in subtler ways such as in the clothes people wear, the meals they prepare, or the objects they create. The ways in which people decorate materials can also be used to infer cultural boundaries, yet this notion can dismiss other possible explanations, including diffusion or imitation of decorative techniques. Other analytical methods, including compositional analysis, can be used in conjunction with stylistic analysis in order to determine where materials originated in relation to where they were deposited in the archaeological record and how it relates to the distribution of style in a region. This approach challenges how boundaries are traditionally defined and focuses on how measurable interactions between communities can be used to reconstruct the degree of connectivity between people. Through the stylistic analysis and compositional analysis with laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) of ceramics, this paper investigates the relationship between boundaries and interactions between two contemporaneous archaeologically defined Late Neolithic (5000-4500 BCE) groups, the Tisza and Herpály, on the Great Hungarian Plain in order to discern how interaction, specifically trade related to ceramic artifacts, impacts socio-cultural boundaries.

### **Trade Versus Cultural Boundaries: A Case Study from the Early Bronze Age Adriatic**

**Helena Tomas** (University of Zagreb, Zagreb)

The focus of this paper is the Early Bronze Age Cetina Culture. Its initial geographical limit was the valley of the Cetina river in the hinterland of the eastern Adriatic coast (present day Croatia), but the pottery typical of the Cetina Culture subsequently spread to the Italian and northern Adriatic coasts, central Balkan Peninsula, Albania, and the Aegean. It is fairly safe to suggest that such a wide radius of the pottery dissemination was a product of an economic exchange. Bronze objects discovered in the Cetina tumuli, and the fact that the initial area of the Cetina Culture contained no metal sources, leads us to conclude that metal was obtained through trade, and that the Cetina people obviously traded their pottery (or its contents) for metal. Are then those “foreign” sites with the Cetina pottery simply representatives of the economic/trade boundaries of the Cetina people, or did some aspects of the Cetina culture travel along with its pottery, so cultural boundaries should be contemplated as well? More broadly, can economic exchange or trade be at all dissociated from any cultural impact? The case study for examining these questions will in this paper be the Cetina pottery discovered on the sites of the Early and Middle Bronze Age.

### **The Soft and Hard Edges of Copenhagen 1000-1800**

**Søren Bak-Jensen** (Museum of Copenhagen, Copenhagen)

In addition to setting people apart, boundaries indicate how people may come together. They are as much about encounters and exchange as they are about limitation. The Museum of Copenhagen has recently carried out large-scale archaeological excavations of sites, that through their status as city gates or harbours have had encounters, exchange, and control of mobility as central functions. The archaeological findings, along with iconographic and written sources, allow us to ask more open questions about how to understand city limits. Surely, these had a military purpose as fortifications, along with being constructed to display the wealth and power of the Danish state. But the city limits also had a less official side to them. They were liminal areas where illegality and prostitution could flourish. They were places of pollution and danger, both in the sense of dangerous crafts being placed close to or outside the city walls, and in because the areas immediately outside the walls were occupied by people living off, working in, or catering for the city, but who were not officially part of it as citizens. Copenhagen was both hard and soft around the edges, and what may that tell us about the role of boundaries?

### **Stari Bar Boundaries: Material Culture as a Cultural Marker**

**Sauro Gelichi** (University Ca' Foscari, Venice), **Margherita Ferri** (University Ca' Foscari, Venice), **Lara Sabbionesi** (University Ca' Foscari, Venice)

The goal of this paper is to analyze the relationship between people living in Stari Bar (Montenegro) through the material culture distribution inside the town. Stari Bar is now a deserted city on the coast of Montenegro, where Ca' Foscari



University has excavating since 2004. The history of Stari Bar can be easily split in three different periods: the Slavic period (12th to beginning of 15th century); the Venetian period (1443-1571, but with some interruptions); the Ottoman period (1571-1878). A first attempt will be a general definition of the material culture (mainly pottery and glass) in each of this three main periods, trying to describe it and its distribution inside the city and its quarter (macro scale). Then, we want to analyse material culture at a smaller scale, evaluating what has been found inside each building investigated. We would like to understand the ideology of inhabitants in different area of the city and to draw a map of distribution inside the city in each periods of different ethnic or cultural groups (Slavics versus Venetians; Catholics versus Muslims). The final aim would be to understand how inner boundaries inside the city have changed through the *longue durée*.

### **Boundaries that Bond and Divide: A Case Study of a Medieval Village from Hungary**

**Csilla Zatykó** (Archaeological Institute of Hungarian Academy of Sciences, Budapest)

Through the historical and archaeological examination of both, the inner area and the outskirt of a medieval rural settlement (Nagyszakácsi, Somogy county) the paper makes an attempt to cast some light on the social, economic and ritual processes that form (consciously, unconsciously or maybe semiconsciously) various types of boundaries within a medieval village. Besides focusing on the ways how different groups of the village community (peasants, nobility, monks) intended to make themselves both separated and unified, the paper also studies the physical appearances of the processes that are visible in the reconstructed medieval village structure and/or in the modern landscape. Considering historical, cartographical and archaeological (field survey and landscape archaeology) sources the paper explores subjects such as setting of village boundaries, characteristics of plot allocation and field boundaries, separation of sacred and profane space, as well as raises questions about the lost or changed meaning of surviving boundaries.

### **The End of the Road: Finding Boundaries through Analyzing Transportation Networks**

**Wayne E. Lee** (University of North Carolina, Chapel Hill)

This paper takes a broad historical perspective on boundary creation and hardening via the creation of transportation networks. It compares Old World imperially-created road networks with those created more organically by the work of agriculturalists in a market system, and then further compares those to New World transportation networks built around water transportation, portages, and porters. Although primarily based on the documentary record, the case studies examined here illuminate how one can interpret transportation networks detected in landscape archaeology as evidence for frontier or boundary formation. Furthermore, examining road nets as an artifact of “boundaries,” can address the extent to which a frontier existed as a linear divide, as a zone of interaction, or as an uninhabitable buffer zone between hostile peoples.

### **Boundaries, Networks, and Interaction in the Neolithic and Bronze Age Aegean**

**William A. Parkinson** (Field Museum of Natural History, Chicago), **Daniel J. Pullen** (Florida State University, Tallahassee), **William P. Ridge** (University of Illinois at Chicago, Chicago)

The study of prehistoric social boundaries has a long history in American and European archaeology. Throughout the twentieth century, the research methodology associated with the reconstruction of ancient social boundaries evolved from normative, trait-based, classificatory systems to more nuanced studies of stylistic variation in material assemblages. In this presentation we employ different theoretical perspectives and methodological approaches in an attempt to reconstruct the shifting social boundaries of the Aegean during the Neolithic and the Bronze Age. In particular, we consider the utility of recent network-based approaches and address the ways in which maritime environments and coastal regions require a re-evaluation of the social boundary concept.

### **Thinking Outside the Box: Social Networks on the Sepik Coast of Papua New Guinea and Implications of SNA for Europe and Beyond**

**Mark Golitko** (Field Museum of Natural History, Chicago), **John Edward Terrell** (Field Museum of Natural History, Chicago)

Archaeologists have long been interested in identifying and interpreting boundaries in the archaeological record, labeling the entities thus identified as cultures, horizons, ware types, and other bounded typological categories that are presumed to reflect real and significant ancient social categories. Yet in the real world social boundaries can be highly fluid, easily crossed, and often context specific, and boundaries drawn based on the spatial and temporal distributions of artifacts, transported raw materials, etc. may or may not indicate social boundaries “on the ground.” Using the Sepik coast of Papua New Guinea as a case study, we argue that Social Network Analysis (SNA) represents both a methodology and a way of thinking that can transcend problematic typological models of human socio-cultural patterning. However, it is critical to begin with appropriate questions and hypotheses (including geographical null models), and also to use baseline archaeological, environmental, and social information to argue for when and why ancient material boundaries might have been socially important. Finally, we briefly explore a few cases from European prehistory that might benefit from this combined approach.

## **Dissolving the Boundary: The Network Perspective on Groups and Boundaries**

**Daniel Sosna** (University of West Bohemia, Pilsen), **Lenka Brunclíková** (University of West Bohemia, Pilsen)

Parsing continuous phenomena into discrete units is one of the essential cognitive processes. Action streams become events, flowing time becomes days, and moving actors become groups. The creation of groups and boundaries is a mental process that enables humans to grasp and internalize complex relationships. The central question of our paper aims at the goals of archaeological research. Are archaeologists working with material things better suited for the search for such mental categories, either past or present, or for practices and interactions that were happening on the ground? We argue that if the latter is the case, there are alternatives to groups and boundaries. Drawing on the work of Eric Wolf, we shift our interest from boundaries to frontiers, which connect rather than divide. We conceptualize frontiers as fuzzy spaces of dynamic flows and interactions. The conceptual shift from the groups divided by boundaries to networks of relationships and flows enables us to follow the dynamic life of humans and things. The empirical basis for this theoretical quest comes from the recent archaeological research conducted in West Bohemia (Czech Republic). We will use rubbish to demonstrate the networks and spatio-temporal trajectories of things and humans moving across various spaces.

## **Boundaries between Late Bronze Age Polities in the Southeastern Great Hungarian Plain: A GIS- and Network-Based Model**

**Péter Czukor** (Móra Ferenc Múzeum, Szeged), **Vajk Szeverényi** (Hungarian Academy of Sciences, Budapest), **Csaba Szalontai** (SZTE Department of Archaeology, Szeged), **Annamaria Priskin** (University of Pécs Department of Archaeology, Pécs)

South-eastern Hungary and northwestern Romania are characterized by the emergence of a series of smaller and larger fortified settlements during the Late Bronze Age, ca. 1300-1100 BC. These are surrounded by a series of smaller rural settlements, forming a three-tiered settlement hierarchy, indicating a fairly complex society. The aim of our paper is to determine and visualize the extent and boundaries of possible Late Bronze Age polities centered on these fortified sites. The basis of the approach is a network- and GIS-based analysis of the settlements of the wider region. It is based on Thiessen polygons, but is modified by reconstructed palaeo-environmental and landscape conditions, primarily palaeohydrology, soil types, carrying capacity and least cost surface analyses. Based on a series of possible scenarios differentiated on the basis of, among others, catchment analysis and issues of labor control, we will provide a series of possible models and visualizations regarding the nature and extent of these polities. We will also carry out a network analysis of ceramic stylistic traits in the same region to investigate the extent and strength of connections between the sites and their inhabitants. These will then be compared to the results of the settlement analysis to examine if there is a correlation between them.

## **Now You See Me, Now You don't: Ancient Greek Akropoleis and the Visualisation of Territorial Sovereignty**

**Robin Rönnlund** (University of Gothenburg, Gothenburg)

In a time when maps and boundary markers were exceedingly rare, the emerging Greek city-states (poleis) of the early Iron Age chose to assert their claims to territorial sovereignty through a combination of myth and monumentality. The walled hilltops widely known as akropoleis belong to the most imposing remains of this period, and their commanding positions also made them some of the most striking features of the visual landscape. In spite of this, scholars tend almost exclusively to focus on the supposed defensive function of these structures, leaving out more symbolic and semantic aspects. What could be seen or could not be seen at different times from different locations was an important aspect of Greek architecture, and monumental walls were probably no exception. The basic assumption in this paper is that as symbols of space and territory Greek akropoleis were also, when visible, manifestations of them. By examining the visibility extent of a large number of akropoleis in relation to the supposed territories of the poleis, we may gain some insight into the ways in which the latter expressed their territoriality and sought to establish their boundaries through visibility.

## **Keeping the Empire at Bay: Archaeological and Historical Signs of Social Boundaries in Ottoman-Period Mani**

**Rebecca Seifried** (University of Illinois at Chicago, Chicago)

After the collapse of the Byzantine Empire, many border zones of the former realm retained their independence from the Ottoman Empire by actively maintaining cultural, political, and economic boundaries that isolated them from macro-scalar events. The Mani Peninsula in the southern Peloponnese is one of those places – or so modern history tells us. Smuggling, piracy, armed resistance, and tax evasion were all strategies employed by Maniates to retain their freedom, and the region's geographical qualities, such as the imposing mountain range to its north, helped in this endeavor. To investigate the nature and extent of these socially-erected boundaries, archaeological and historical research was conducted in the southern part of the peninsula. This paper presents the preliminary results of research on the settlements, fortresses, kalderimia (cobble roads), architecture, and surface ceramics of the region, along with a study of imperial tax registers that were used to track changes in population and agricultural production over time. Taking a multi-scalar approach, it explores Mani's role as a border zone of the larger empire, as well as how the Maniates' cultural, political, and social boundaries were affected by 400 years of interaction with the Ottoman Empire.

## **Modelling Boundaries: A Case Study of Xtent Analysis for Reconstructing Medieval Settlement Pattern in c. Fejér, Hungary**

**Máté Stibrányi** (Hungarian National Museum Center for National Heritage Protection, Budapest), **Gergely Padányi-Gulyás** (Lechner Lajos Knowledge Center Non-profit Ltd., Budapest)

Spatial distributional research of archaeological sites can be separated into two branches: accessibility (connection) and delineation (distance and hierarchy). The latter influenced processual archaeology and the concept of site catchment analysis was a popular way to model delineation. However, another way to model this, is based on a simple geometric operation called Voronoi (Thiessen) polygons. Renfrew and Level created the concept of Xtent analysis, which combines the advantages of central place theory and Voronoi polygons, to plot hypothetical (political) boundaries. Ducke and Kroefges upgraded Xtent analysis in 2007 by creating a GIS analysis that models hypothetical geographical boundaries. This paper presents the results of a study in which Xtent analysis was conducted in Fejér County to examine the hypothetical extent of medieval villages, boundaries, and land use. In the study area, most of the medieval churches were demolished, so location is based on archaeological findings and historical record. Localisation of the former church serves a good basis to identifying the central place of a medieval village. Based on these locations, Xtent analysis is used to model the territories, boundaries and extents of the medieval settlements in the area, using environmental factors and the relative positions of the central places.

## **“The Final Frontier”: A Quantitative Approach to Archaeological Uncertainty in the Context of Late Bronze Age Thrace**

**Denitsa Nenova** (University College London, London)

Modern and historical geo-political encounters in the southeast Balkan region have caused the fragmentation of the Thracian area, defining the character of any attempted research. The division between the states of Bulgaria, Greece and Turkey has triggered the formation of three “national archaeologies”, cutting across geographically uniform entities. Multiple fluctuations, which re-defined the borders of the countries in the region, have created conditions that pushed archaeologists away from the frontiers, leaving blank areas in the archaeological record. Moreover, differences in levels of exploration, research methods, ideology, terminology and interpretation have manufactured a separate array of “investigation” boundaries. As a further challenge, this modern incoherence overlies the complexity of social and cultural dynamics at the end of the 2nd millennium BCE. The everyday organization of life as well as more rarefied cultural practices within Thrace suggests complex systems of intra-regional interaction and mobility. What has so far hindered any proper understanding of the existing datasets has been the unwillingness to adopt integrative analytical methods and to develop research agenda that deliberately defeat contemporary boundaries in such a cross-border project. Adopting parametric and non-parametric statistical tools in combination with Geographical Information Systems (GIS) offers a powerful foundation for addressing such issues.

## **POSTER**

### **Fences – A Study of Wooden Enclosures**

**Susanna Eklund** (Societas Archaeologica Upsaliensis-SAU, Uppsala)

Boundaries exist in many shapes sometimes visible and sometimes not. This poster will present traces of wooden fences of different sorts that we have investigated within several large-scale excavations, mainly Iron Age, in central Sweden. I will introduce the different types of boundaries and also discuss the reason for their erection. Differences between fencing material also have been discovered, with stonewalls enclosing larger objects like fields, and meadows, and wooden fences enclosing smaller areas. The study has shown that wooden fences have been used to enclose a number of different contexts, including courtyards, cattle paths, wells, kitchen gardens and activity areas, such as metal working areas. There are several different reasons for putting up a fence. They have been used for fencing in livestock, and protecting crops. They have also been used as shelter and protection from the wind, and for defense. Sometimes certain activities are to be kept secret from the outside world and fences have been protecting the view and the fence make up a boundary between private and official. Most interesting is the fact that those fences or boundaries are marking territory and/or social status.



## **T01S021 - PHOENICIAN MARITIME PIONEERING AND PUNIC EXPANSION: RECONSTRUCTING TRADE AND DIETARY PATTERNS**

**Organizers: Cynthia Debono-Spiteri** (Max Planck Institute for Evolutionary Anthropology, Leipzig), **Domingo C. Salazar-García** (Max Planck Institute for Evolutionary Anthropology, Leipzig), **Nicholas Vella** (University of Malta, Msida)

Perhaps the most significant legacy attributed to the Phoenicians was their mastery of the seas, which led them to establish the first commercial Mediterranean network, expanding from Lebanon to beyond the Pillars of Hercules between the



8th and 6th centuries BC. The Punic culture, which flourished in the Central and Western Mediterranean from Phoenician colonies, maintained their exceptional navigation skills, but developed into more settled and structured territories that allowed them to intensify their exploitation of Mediterranean resources. Their rise to prominence can best be measured by the threat they posed to the Roman Republic, while the salvage of the agronomic treatises by Mago after the sacking of Carthage attests to their renowned agrarian competence. The paucity of Phoenician and Punic written sources adds to the complexity in deciphering this ancient civilisation, including inferences to their daily dietary patterns and trading goods, which can only be inferred from the material culture. The aim of this session is to bring together research focused on diet and trade in Phoenician and Punic contexts. We welcome submissions showcasing diverse perspectives and interdisciplinary approaches in addressing these questions, as well as papers related to the existing chronological and geographical variability encompassing the Phoenicio-Punic period.

## ORAL PRESENTATIONS

### Phoenician and Punic Underwater Contexts in the Lagoon of Santa Giusta (West Sardinia, Italy)

**Carla Del Vais** (Università degli Studi di Cagliari, Cagliari), **Ignazio Sanna** (Soprintendenza per i Beni Archeologici per le province di Cagliari e Oristano, Cagliari)

Since 2006, a collaborative research project carried out between the Superintendence of Cagliari and the University of Cagliari is underway to investigate a large and important underwater context in west-central Sardinia. Dating to the Phoenician and Punic periods, it is located in the lagoon of Santa Giusta and is connected to the Phoenician city of Othoca. Much pottery has been recovered, mostly represented by transport amphorae, but also by domestic pottery and, more rarely, ceramics associated with funerary and cultic use (6th-2nd century BC); in several cases the amphorae contained animal bone remains, mostly representing ovicaprines, with clear traces of slaughter, associated with numerous carpological remains (grapeseed, olive seeds, water melon, hazelnuts, pine nuts, etc.); we believe that these amphorae were containers for canned meat that was flavoured for export. Many wood remains were found in association with the transport amphorae; these remains, large and differently cut, can only in a few cases be related to seacraft, while it seems likely that the majority belonged to land structures of an uncertain nature. In order to study these artifacts, several collaborative research projects were undertaken and are now in progress: palaeobotanical analysis, palaeozoological analysis, biochemical analysis on the contents of the vessels, archaeometric analysis on the pottery.

### Eggs, Gold, Cats and Caruncles: Phoenicio-Punic Trade Networks in Africa

**Farès K Moussa** (University of Edinburgh, Ammoun Voyages Ltd, Edinburgh)

This paper evaluates the evidence for overland and maritime-based Phoenicio-Punic trading networks with Saharan and sub-Saharan Africa. It proposes that long-distance trade within the African hinterland prior to the Roman period was probably considerably more advanced than is otherwise currently acknowledged.

### New Ingredients for New Social Actors: South Iberia between the 9th-6th centuries BC

**Beatriz Marin-Aguilera** (Universidad Complutense de Madrid, Madrid)

Phoenician trade and colonisation in South Iberia have been widely explored by archaeologists. Most synthetic works have tended to represent colonial societies in terms of binary oppositions focusing either on the history of the Phoenicians or on narratives involving the indigenous communities. However, postcolonial studies and the anthropology of colonialism have demonstrated that colonial encounters – ancient and modern – do change all parties involved. In fact, colonial situations offer new ingredients and technologies, diversifying types of cuisines and thus dietary patterns of both colonial and indigenous societies. Moreover, cooking habits can be altered by experiences that intensify food identity and produce a growing mixture when different groups come together. The aim of this paper is to explore hybrid practices and power entanglements in food preparation and consumption in Southeast Iberia between the 9th and 6th century BC, analysing faunal and archaeobotanical data, as well as examining domestic material culture.

### New Insights into the Economic Basis of Phoenician Settlements in the Far West

**Sonja Behrendt** (Thuringian State Office for the Preservation of Historical Monuments and Archaeology Weimar, Thuringen), **Dirk-Paul Mielke** (University of Muenster, Münster)

Phoenician settlements, especially those on the Iberian Peninsula, are generally characterized as trading centres with supra-regional activities. However, the regional embedding and the local economic basis of these settlements is seldom part of the research discussion. In this context our new large-scale project for archaeometric investigation of Phoenician pottery provides new insights into the economic organization of Phoenician settlements on the Iberian Peninsula. The data of the

project suggest a strong local or regionally oriented economic basis of the settlements. These results were supported by a critical revision of further evidence pertaining to other production spheres, including metallurgy. Also the diverse interactions with the indigenous cultures on the field of pottery technology has demonstrated a deep embedding of the Phoenician culture on the Iberian Peninsula. This paper presents a critical revision and new insights about the general character of Phoenician settlements and their settlement organization.

### **Connecting the Western Mediterranean. Trade of Punic and Turdetan Products beyond the Pillars of Hercules**

**Francisco José García Fernández** (University of Sevilla, Sevilla), **Antonio Sáez Romero** (University of Cádiz, Cádiz), **Violeta Moreno Megías** (University of Sevilla, Sevilla), **Eduardo Ferrer Albelda** (University of Sevilla, Sevilla)

After the archaic Phoenician colonization, a new period of efflorescence began from 5th century BC for the western Punic world under the leadership of the city of Gadir. This expansion affected the Strait of Gibraltar, the Guadalquivir Valley and the Atlantic coastlines of the Iberian Peninsula. One of the most dynamic zones was certainly the South Western Iberian Peninsula, including the sphere of Gadir and the internal area of present Andalusia. However, it was a region of intricate political, social and, above all, cultural complexity. We can differentiate the Turdetan culture – a legacy of the Orientalizing period - the western Punics and, from at least the early 3rd century BC, the Carthaginian influence. This reality also affected the economic system and alimentary patterns reflected in material culture, especially amphorae, which in turn reveal trade networks and traded products. Firstly, coastal Punic areas distributed local products under the direct control of Gadir. In turn, the Turdetan cities along the Guadalquivir Valley received those products while trading their own agricultural surplus on a regional scale, including to a great extent the Punic markets. Finally, the Central Mediterranean centres, mainly Carthage, Sardinia and Ibiza, provided additional supply redistributed from Gadir to the Guadalquivir and other areas under Punic influence.

## **POSTER**

### **Economy in Monetary Images. The Wealth of Punic West during the Roman Republican Period**

**Elena Moreno-Pulido** (Universidad de Cádiz, Cádiz)

The legacy of the Western Phoenician colonization results in a cultural and commercial partnership between the Mauritanian and Hispanic littorals, which is still appreciable during the Roman Republican period. This association would be based on the exploitation of very specific resources with such an economic interest that they would become real civic and regional emblems. Their coins – as main propaganda tools – carry representations associated with agriculture, livestock and fishing, which would have been the most important resources exploited by these communities. Along with its religious function, the repetition of these special monetary icons – including spikes, grapes, tuna, fishes, bulls and horses – establish the stereotypical idea of western wealth. This idea matches with the main interests that Rome itself expounded in its intentions of conquest. That objective would have been the opening of markets, but also the identification and self-recognition of these cities within the legend of the prosperous Far West that we can read in the classics. These repetitive emblems reveal economic and religious contents; therefore, the financial union of the region and finally the interest of each city in being recognized by potential markets and foreign investment.



### **T01S022 - A MATRIX OF SOCIOECONOMIC CONNECTIVITY: PORTS, HARBORS AND ANCHORAGES IN THE MEDITERRANEAN**

**Organizers:** **Vasif Şahoğlu** (Ankara University, Mustafa V. Koç Research Center for Maritime Archaeology-AN-KÜDAM, Ankara), **Elizabeth S. Greene** (Brock University, Department of Classics, St Catharines), **Justin Leidwanger** (Stanford University, Department of Classics, Stanford)

Exploration of the material remains of Mediterranean ports and harbors extends back to the earliest days of underwater archaeology. Yet such studies have often focused on the strictly technical and architectural at the expense of the social and economic. In addressing together the many facets of these maritime archaeological sites, this session investigates how ports, harbors and anchorages fostered the development of socioeconomic relationships, communities and landscapes across the Mediterranean. Papers in this session will explore, at various analytical scales and through different methodologies, the cultural, environmental and economic processes behind constructed maritime landscapes, the interrelated effects of technological development and socioeconomic change, and the comparative and complementary roles played by a range of diverse facilities from massive built harbors to humble anchorages. Taking up the call of Horden and Purcell (2000, 393) to view these liminal spaces as “nodes of density in the matrix of connectivity”, this session provides a diachronic view of how ports, harbors and anchorages—large and small, built and natural, urban and peripheral, all-weather and seasonal—tied together the coastal populations of the pre-modern Mediterranean.

## ORAL PRESENTATIONS

### At the Origins of Globalization: Wadi Gawasis and Egyptian Maritime Trade to Punt

**Rodolfo Fattovich** (University of Naples L'Orientale, Naples), **Kathryn A. Bard** (Boston University, Boston)

In December 2001 the University of Naples 'l'Orientale' (UNO), Naples, and the Italian Institute for Africa and the Orient (IsIAO), Rome (Italy), in collaboration with Boston University (BU), Boston (USA), started a joint archaeological project at the site of Mersa/Wadi Gawasis on the Red Sea coast under the direction of Rodolfo Fattovich (UNO/IsIAO) and Kathryn A. Bard (BU). The excavations demonstrated that the site was associated with maritime trade in the 2nd millennium BCE. In particular, an abundance of evidence for Dynasty 12 seafaring expeditions was recorded: ship timber, anchors, ropes, cargo boxes, administrative devices, inscribed stelae, ostraca and papyri, ceramics, lithics, plant and animal remains. Exotic ceramics included fragments of vessels from the Yemeni Tihama and the region of Aden and possibly Eritrea, as well as the Levant suggesting that in the early to mid-2nd millennium BC the Egyptian seafaring expeditions in the Red Sea already were part of an incipient Bronze Age global economy.

### A "Significant Place" at the Rock-Cut Site of Myrina Kastro, Lemnos Island

**Christina Marangou** (Independent researcher, Athens), **Rena Veropoulidou** (Museum of Byzantine Culture, Hellenic Ministry of Culture and Sports, Athens), **Eftychia Yannouli** (Zooarchaeologist, Athens)

Research at the diachronically occupied (later prehistory-antiquity), rock-cut site on the Kastro hilly peninsula by the port of Myrina, on the western coast of the island of Lemnos, revealed a very complex archaeological setting. It consists of a series of constructions interrelated with the natural surroundings, covering several sectors, each one with its own characteristics, likely uses, functional or not (obviously) functional loci and structures, as well as its material finds. A general maritime orientation of the site and the nautical activities of the inhabitants constitute fundamental features. Maritime connections are inferred locally in multiple ways, yet the implied patterns are quite multifaceted. The present paper will focus on a particular set of features in a restricted spatial unit, surrounded by rock-cut scenery. This "significant place" materializes within a man-made mise-en-scène, blending artificial components with the natural environment, and involving the presence of a number of finds, both manufactured items and natural objects, as well as organic remains. Current interpretative perspectives embrace ritual practice, symbolism, liminality, economic activities and maritime connections.

### The Mycenaean Port Town of Kalamianos on the Saronic Gulf, Greece

**Daniel J. Pullen** (Florida State University, Tallahassee), **Joseph Boyce** (McMaster University, Hamilton), **Thomas F. Tartaron** (University of Pennsylvania, Philadelphia)

The Mycenaean harbor settlement at Korpos: Kalamianos, on the Saronic Gulf coast of the Corinthia, Greece, offers the unique opportunity to examine a short-lived maritime outpost, purposely founded as a component of state expansion in a climate of intense peer-polity competition in Late Bronze Age Greece. A large walled urban settlement was established in the late 14<sup>th</sup> century BC (LH IIIA:2/IIIB:1 period), where a small, earlier LBA village had existed. Architectural survey has documented the town, and marine geological work has succeeded in reconstructing the LBA coastline and likely harbor basins. The short life of Kalamianos is one indication that the harbor was dependent upon another political entity for its existence. Architectural and artifactual features suggest a close link between Kalamianos and the palatial centers of the Argolid, ca. 50 km overland to the west. We argue that Kalamianos was established by one of these palatial centers to be the principal harbor on the Saronic Gulf, an important "small world" where these palatial centers had not previously had a presence. This paper explores the relationships of the Argive palatial centers with the Saronic Gulf small world, through the establishment of the port at Kalamianos.

### A Seascape and Landscape of Late Bronze Age Interaction on Cyprus

**David Sewell** (University of Edinburgh, Edinburgh), **Georgia Andreou** (University of Edinburgh, Edinburgh), **Carrie Fulton** (Cornell University, Cornell), **Sturt Manning** (Cornell University, Cornell), **Andy Viduka**

The site of Tochni Lakkia lies close to the mouth of the Vasilikos river on the south coast of Cyprus. Situated directly on the coast the site has been undergoing an extensive erosion episode. Recent archaeological investigations at the site have attempted to record the walls, floors and features of a Late Bronze Age and Early Iron Age settlement before they are completely destroyed. This recent work has highlighted the role of liminal sites within the Late Bronze Age socioeconomic landscape and in particular the interplay of site hierarchy and economic exchange. In the case of Lakkia it may well have acted as a gateway community for the well known Late Bronze Age town of Kalavassos Ayios Dhimtrios further up the Vasilikos valley and potentially the copper producing area in the hinterland beyond. It appears that this area provided a favourable anchorage over an extensive period of time with later Iron Age and Roman activity, as well as a Colonial harbour. The recently constructed modern harbours at Zygi and the ongoing construction project of the Vasilikos Energy Centre further highlight that this section of coast is home to one of the important second order harbours of Cyprus.

## **Liman Tepe/Klazomenai: The Role of Maritime Connections in the Transformation of a Harbour Settlement**

**Vasıf Şahoğlu** (Ankara University Mustafa V. Koç Research Center for Maritime Archaeology-ANKÜDAM, Ankara)

Liman Tepe is a prehistoric harbour settlement situated on a promontory in Urla Peninsula – İzmir in Western Turkey. The site was continuously inhabited from at least the 5th Millennium BC onwards and had transformed into one of the famous ports of the Archaic world as Klazomenai. Liman Tepe exhibits strong maritime connections from the 5th Millennium BC onwards and reaches its zenith as a harbour site during the 3rd Millennium BC with strong Cycladic connections. İzmir region has rich metal sources as well as extensive fertile plains which greatly contributed to its economic development. The coastline is directly connected to the inland, all the way to central Anatolia through deep river valleys like those of the Hermos and Meander rivers. Urla peninsula projects into the Aegean as a long, narrow promontory and divides the northern and southern coastline of Western Anatolia into two. In this paper, it will be argued that the combination of technological developments in seafaring and unique location of Liman Tepe / Klazomenai at the junction of all these natural pathways, played an important role, in the changing socio – economic development of the site through time.

## **Naukratis, “Mistress of Ships”: New Research on a Greek-Egyptian Port**

**Ross Thomas** (British Museum, London), **Alexandra Villing** (British Museum, London)

In antiquity as in modern times the Nile Delta was a contact zone between Egypt and the Mediterranean world. The ports of the Delta moderated the flow of people, goods and ideas into Egypt, acting as contact zones between ‘Egyptians’ and ‘foreigners’. From the 7th century BC onwards, Naukratis, the Greek-Egyptian trading port on the Nile, functioned as a major hub for such contact. An inland river port with a ‘Mediterranean’ outlook, Naukratis was established as the international gateway for the new political centre of Egypt, Sais. It retained a central position in regional and supra-regional network involving ports and cities, maritime, riverine and overland routes, for more than a thousand years. Since 2002 a team of researchers at the British Museum have been investigating the archaeology and history of the site by restudying old as well as new conducting new fieldwork. The proposed paper will present a new diachronic vision of Naukratis based on this latest research, examining the extent to which political, cultural, social, environmental, technological and economic factors shaped its development and its position in Nile Delta and Mediterranean networks, and focusing particularly on the interplay between landscape and human agency.

## **Harbors, Proto-Harbors and Anchorages and Tel Akko**

**Michal Artzy** (Haifa University, Haifa)

The layout of a coastal town or city, such as Akko, is dictated by the shoreline and the river associated with it. The anchorages or harbors – lifelines of an ancient coastal site – with changes leading to corresponding adaptations of habitation patterns and axis of an extended living site. With new understanding based on geomorphological and geophysical studies, possible locales of anchorages, landlocked harbors, and artificial harbors were investigated. Dating of the settlement patterns associated with it contribute to further understanding of the positioning of the anchorages and harbors in the river and sea, and their relationship to the habitat dynamics. A landscape survey in the tell’s vicinity using geophysical equipment was carried out and in addition underwater excavations of a supposed artificial harbor, published in the past as dating to the 6<sup>th</sup>-5<sup>th</sup> century BCE (Phoenician/Persian) was undertaken. The data gathered produced surprising results. Besides the data pertaining to the Phoenician/Persian period, a new element, the Crusader period, ca. 12<sup>th</sup>-13<sup>th</sup> centuries CE, which has previously now been accounted for, entered into the reckoning of area, both on the tell, its vicinity and the eastern side Akko’s bay.

## **Investigations at the Harbors of Burgaz, Turkey: Shifting Centers of Maritime Activity on the Datça Peninsula**

**Justin Leidwanger** (Stanford University, Stanford), **Elizabeth S. Greene** (Brock University, St Catharines), **Numan Tuna** (Middle East Technical University, Ankara), **Nadire Atıcı** (Middle East Technical University, Ankara)

Investigations in the harbors of Burgaz (Old Knidos) on Turkey’s Datça Peninsula have been conducted by Brock University and Stanford University since 2011 in tandem with excavation by Middle East Technical University of the Archaic through late Classical habitation site. After the late Classical period, settlement at Burgaz declines and the site is refashioned as an industrial complex. Built dolia and workshop or storage spaces along shore testify to a flourishing industry of wine production. That the town also continues to utilize—and in some places expand—its harbor structures and fortifications into the Hellenistic period, even as the settlement changes its focus toward industry, may suggest that the design of the harbors likewise shifts to meet new needs of local production and distribution. With the growth of Knidos as the region’s preeminent center, looking outward to a larger Hellenistic world, Burgaz does not recede into the economic background. Continued proximity to key resources—fertile agricultural land, raw materials, and ceramic production areas—allow Burgaz to expand its industrial focus on land and at sea, serving as a supplier of products within its immediate region and beyond through integration with the growing maritime economy of Knidos.

## Urban Networks: The Port-City Development of Delos

**Mantha Zarmakoupi** (National Hellenic Research Foundation, Institute of Historical Research, Department of Greek and Roman Antiquity-KERA, Athens)

The port city of Delos underwent a period of rapid economic development after 167 BCE, when the Romans put the island under Athenian dominion and turned it into a commercial base connecting the eastern and western Mediterranean. The accelerated urbanization, attested by the formation of new neighborhoods, as well as the redevelopment of existing urban and harbor areas of the island through the construction of jetties, docksides, warehouses and markets, were the result of this economic development and the unprecedented demographic growth and cultural diversity that it generated. This paper focuses on three port areas of the island to address the ties between economic change and urban growth. By analyzing urban development in relation to social and economic changes, I examine these port areas as microcosms of the broader developments that the island underwent in this period. In doing so, my aim is to address the factors that shaped the dynamic commercial cityscape of the port city of Delos.

## Connectivity and Separation: The Role of Harbors in the Urban Plan of Hellenistic Miletos

**Lana Radloff** (University at Buffalo, SUNY, Buffalo)

Following the Persian destruction in 494 B.C.E., Miletos was rebuilt according to Hippodamian principles on a more modest scale. Later, during the 4th century B.C.E. and Hellenistic period, the settlement was expanded, as it flourished as an important center for trade. One area of expansion was around the north market, located immediately south of the Lion Harbor. Structures, such as the marble harbor stoa, a square building, prytaneion, and south market, were constructed adjacent to the north market, while south of the Theater Harbor a west market was added. Thus, these new constructions resulted in the transformation of the architectural layout of Miletos, reflecting a shift in its socio-economic structure and administration. Did sea, land, and domestic transactions occur in different markets, and, if so, how did this impact their administration? To what extent was there free flow of people and goods between the harbors and agoras? Based on the re-evaluation of published materials, this paper explores the physical relationship between the agoras at Miletos and the role its harbors played as nodes of connectivity and separation. From a socio-economic perspective, these built spaces are explored to provide a diachronic view of the changing role of harbors and harbor-city dynamics.

## Ancient Harbors of the Northern Black Sea

**Valeriya Kozlovskaya** (New York University, New York)

Horden and Purcell's work presents a new approach to the study of the Mediterranean, which for many other regions of the ancient world still remains a desideratum. The proposed paper will explore the Northern Black Sea in antiquity from the maritime perspective, focusing particularly on the study of harbors and their place in the local, regional, and interregional hierarchies. The approach I use is informed by contemporary studies of the ancient Mediterranean that seek to establish "the degree and nature of connectivity" within that region. In the case of the Northern Black Sea, the available evidence is far less abundant, so that any attempt at reconstructing the harbor network is inevitably based on analogies and comparisons with the much better-preserved and better-studied Mediterranean harbors, as well as on general topographical and geological data. I intend to demonstrate that ancient Greek harbors in the North Pontic region were similar to the Mediterranean harbors in several aspects, including their general layout, main components, and construction techniques, adapted to local conditions. Most of all, it will show that the North Pontic harbors, very much like those in the Mediterranean, did "obey a regional logic" and "cannot be understood as solitary and fixed points".

## Maritime Landscapes in North Tuscany (3rd cent. BC- 7th cent. AD)

**Marinella Pasquinucci** (University of Pisa, Pisa), **Simonetta Menchelli** (University of Pisa, Pisa)

The Etruscan thalassocracy is well documented by written and archaeological sources, but Roman ports, harbours and anchorages networks are better known than the Etruscan ones. Since the Romanization process (starting in late 4th/early 3rd cent. BC) a port-harbours network was settled up in the studied district for the Roman military and economic needs; it connected the main cities of the district and their territories with the Mediterranean sea-routes. In diachronical perspective, we can define environmental changes, technological developments, socio-economic changes and the role the rivers had in connecting sea-routes, coastal districts and hinterlands. Archaeological, epigraphic and documentary data show the intensive production and trade activities in north coastal Tuscany. We provide a few case studies: - The economic and social mobility, due to import-export maritime activities, is well documented in the late 1st cent. BC-1st cent AD. It involved the whole North Etruscan society cutting across the various classes. - In the district the most successful productions were wine and vessels. In particular, the Pisa sigillata vessels (1st cent. BC-2nd AD) were traded all over the Romanized world and beyond. - Wares from many Mediterranean harbours reached the studied area and were redistributed both in urban and rural contexts.



### **Sewage, Refuse and Tsunami Waves: Recent Research at the Harbor of Caesarea Maritima**

**Beverly N. Goodman Tchernov** (University of Haifa, Haifa), **Hendrik Dey** (Hunter College, New York), **Jacob Sharvit** (Israel Antiquities Authority, Jerusalem)

Caesarea Maritima, built by Herod over 2000 years ago, was an all-weather artificial harbor constructed on the eastern-most shores of the Mediterranean. Excavations directed by Prof. Avner Raban and Prof. Ed Reinhardt in the shallow areas of the intermediate harbor (areas 'TN and SW') suggested a situation of abandonment, destruction, and refuse dumping. In 2011 excavations returned to these areas to reassess the deposits in light of a growing body of evidence for multiple tsunami events at Caesarea. Tsunamis in the Mediterranean are not uncommon, and their potential for damage is highly variable, ranging from barely recognizable to devastating. A portion of the tsunamis impacting Caesarea may have been innocuous while others severely debilitating. Here, results from the excavations of 2011, observations in the field and from former archaeological reports will be described and discussed within the context of how, if at all, the tsunamis impacted the activities of the harbor and livelihood of Caesarea.

### **The Harbors of Elaiussa Sebaste: Preliminary Analysis of Environmental, Cultural and Socio-Economic Aspects of Maritime and Coastal Topography**

**Maria Francesca Pipere** (Sapienza Università di Roma, Roma)

The paper is aimed at illustrating some preliminary results yielded by the ongoing research at the coastal site of Elaiussa Sebaste (Cilicia, Turkey) with specific regards to its maritime vocation, in a region which has been defined the "connective between East and West". A natural crossroad in the wider frame of Eastern Mediterranean routes, Elaiussa, with its two prominent harbours now almost completely silted, shows a lively continuity from the late Hellenistic through the early Byzantine periods. The research were undertaken underwater and by land at Elaiussa since 2012 with the purpose of a groundbreaking approach to the coastal and maritime topography: what emerges is a picture about the environmental and historical, social, military, and economic issues which characterized the development and the transformation of the city, and of its harbours, coast, and hinterland through long-term natural and anthropic processes. Particular attention has been paid to the analysis of the harbours and their connected facilities, to the presence of shipwrecks, and to the regional trading routes within Mediterranean, regional and local perspectives, with the purpose of understanding the influences and the impulses of different nature which affected the settlement, the transformation, the development and decline of the site.

### **Harbour Dumpsite and Post-Medieval Maritime Material Culture in North Mediterranean French Coast from a Ceramic Assemblage Analysis**

**Dieulefet Gaëlle** (Laboratory for Medieval and Modern Archaeology in the Mediterranean, CNRS, Aix-en-Provence)

For this international conference, we wish to propose a study of maritime material culture and especially in onboard furniture, used in a personal and collective way, whose modalities of acquisitions are usually marginal. The work of Horden and Purcelle (2000, 393) define port area like "*nodes of density in the matrix of connectivity*." The analysis of archaeological artefacts, lost or rejected by vessels in anchorages, can characterise the structural diversity of ports present on the north-east coast Mediterranean during the post-medieval period and provides different level of maritime trade. Our analysis support is composed of ceramics produced between the XVIth and the XVIIth century coming from harbour dumpsite and shipwreck located on the north Mediterranean french coast. Think as one major archaeological artefact, ceramic may help to understand maritime exchanges, dishes and one part of the onboard *instrumentum*. The diachronic approach of this research leads to a repartition map of harbour dumpsite and shipwreck in north Mediterranean French coast. Confronted with written sources the results give us valuable information on relations and uses in north Mediterranean and allow us to better understand the everyday life seafarers.



### **T01S023 - SPREAD OF IDEAS, THINGS AND PEOPLE. CROSS-CULTURAL CONTACTS ON BALTIC SEA AREA**

**Organizers:** **Marta Chmiel** (University of Szczecin, Department of Archaeology, Szczecin), **Michał Adamczyk** (University of Szczecin, Department of Archaeology, Szczecin), **Aija Vilka** (University of Latvia, Faculty of History and Philosophy, Riga), **Paulina Romanowicz** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Szczecin)

The Baltic Sea in the archaeological perspective is incredibly dynamical, not only because of coastline changes, but also because of the history of contacts of the coasts inhabitants. Since the arrival of first settlers up to historical times, the Baltic Area was the arena of migrations, exchanges of ideas, trade and wars between different cultures, peoples and nations. Those phenomenon are commonly seen as spread of ideas, things and people. In following session we would like to join a different points of view for Baltic Region as area of cross-cultural contacts since Stone Age to Post-Medieval Period. The main issues of the session are: • Migrations • Ideas • Trade • Wars • Cultural changes.

## ORAL PRESENTATIONS

### Trade and Migrations in Copenhagen 1400-1700 AD. What We can Infer from the Recent Excavations?

**Stuart Whatley** (Museum of Copenhagen, Copenhagen)

The Metro Cityring excavations in Copenhagen has uncovered hundreds of thousands of artefacts from the various moat fills, land reclamation deposits and cultural deposits dating from the Early Medieval period to Modern times. These artefacts have been recovered from the excavations beneath the modern Town Hall Square (Rådhuspladsen), Kings Square (Kongens Nytorv) and from the Old Beach (Gammel Strand), the medieval and Renaissance Port. When looking at these artefacts, many things should be considered such as; what can the finds tell us about contact with Copenhagen and how did this contact within the Baltic change over time? If we look at the provenance of artefacts, trading routes can be discerned, and from studying the artefacts from the various sites over a period of time, patterns have emerged portraying the growth of the city and arguably its importance within the Baltic region. The finds may also be used to infer migration, helping us understand who was moving to Copenhagen, their work, lifestyle and even what they wore. The talk will focus particularly on the Old Beach (Gammel Strand) port excavation, the main port in Denmark and Copenhagen from 1400-1700, where the transfer of ideas, artefacts and immigration was a frequent event.

### “Homo Ludens” in Late Medieval Towns on the South Baltic Coast. Archaeological Traces of Play

**Paulina Romanowicz** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Szczecin)

During the excavations in the towns on the South Baltic coast we find a high amount of toys and games accessories. They seem to be unsatisfactorily used in creating the vision of so called ludic culture in those places. Collected together and analysed, they could tell us much more than just about particular forms of recreation in those times. In this paper I will try to answer the question about what these amusement forms looked like? Do we see any differences between children and adults play in archaeological material? What does it tell us about this medieval society? What has changed in comparison to earlier times? And, are there any visible differences between each part of this region in the preferred forms of play?

### Microregional Studies and the Schema of Late Medieval Statehood: Lithuanian Case

**Albinas Kuncevicius** (Vilnius University, Vilnius), **Rimvydas Lauzikas** (Vilnius University, Vilnius)

Lithuanian state was an exceptional occurrence in the political context of Medieval Europe. Major distances from both - main political and cultural centres due, that the Eastern coast of the Baltic Sea can be considered as a marginal region, a cultural island in the field of interactions between the Eastern and Western Christianity. This marginality meant that the society to entered into statehood slowly and belated. Lithuania was the only medieval state in Europe which was established on the grounds of paganism. Thus, this presupposes that Lithuanians had a unique schema of statehood in the late medieval ages. In this presentation the scheme of Lithuanian state creation and development from the 10th to 14th century is represented, it is based on the results of the interdisciplinary programme „The beginnings of Lithuanian statehood according to the exploration of Dubingiai microregion“ which was carried out from 2011 to 2015. The creation and development of the Lithuanian statehood is being analyzed in the geopolitical contexts of cultural marginality of the Eastern and Western Christianity and the interactions between the centre and periphery. The most important elements of the schema are the development of economical, social and territorial structures.

### A Link Forgotten: Danish-Baltic Relations in the Middle Ages

**Jette Linnaa** (Moesgaard Museum, Moesgaard)

Denmark and the Baltics have a long history of entanglement; Saxo Grammaticus tells of Danish crusades in the vicinity of Szczecin in the 1160-ties, and the Duchy of Estonia was part of the Danish realm from 1206 to 1346. However, the material remains of these encounters- both peaceful and less peaceful are less well understood. The aim of this paper is to present examples of material traces of these connections on either side of the present day borders, and to open the field for further studies.

### Slavic Vessel – Utility of Construction in Archaeology

**Jakub Stępnik** (Adam Mickiewicz University, Poznań)

Somewhere around the 6th century the earliest Slavs reached the south coast of the Baltic sea. While adjusting to new conditions of living they continuously developed the skills of traveling by water. At first these were dugouts, then when time passed, more advanced vessels were to be produced. While the Viking Age Scandinavian ships and the technique of crafting them is widely known among archaeologists, the Slavic boatbuilding is not yet so popular. Generally the construction of Slavic and Scandinavian ships in Early Middle Ages were quite similar. Both used mostly oak wood, they were clinker-built and used one sail of probably rectangular shape. However, there are certain differences such as, the way of joining strakes and sealing the whole vessel; which may give us detailed data about the region that boat comes from and the directions that it might have been sailing to. The latest research shows that Slavic ships were also sea going, and that sailing routes



connected the harbours of the South Baltic with the entirety of Northern Europe. Series of wrecks show that the Slavs also had the ability to join international trade and piracy.

### **Cross Cultural Cemeteries: A Case Study from the Lejasbitēni Cemetery (3rd-10th c.) in Latvia**

**Aija Vilka** (University of Latvia, Riga)

Cemeteries, especially if used over many centuries, can show how cultures interacted, changed and influenced each other. In this paper the Lejasbitēni cemetery, which has been used for seven centuries, will be analysed to show how aspects of different cultures interact within one cemetery, leaving traces in the cemetery organisation, mortuary practices and burial treatment. Although the Lejasbitēni cemetery has been used by the local tribe - Latgallians, it was possible to establish that some aspects and burials can be associated with other cultures and local tribes, making this cemetery cross-cultural.

### **Social Relationship during Roman Period on the Southern Coast of the Baltic Sea, in North-Western Poland – The Leśno Site Example**

**Marta Chmiel** (University of Szczecin, Szczecin)

During the Roman Iron Age on Southern Coast of the Baltic Sea, in North-Western Poland we observe a new cultural unit, Wielbark culture, often identified with the Goths from Scandinavia. The following paper will present social relationships on the Wielbarkian site with stone circles in Leśno. Results of statistical analysis will be interpreted on the basis of cultural and social background. Furthermore, historical sources will be used, as a comparison material. Roman Iron Age is the first period in Baltic Area archaeology where historical sources, poorly but very hopeful, could be used. The paper will also contain graves' spatial distribution. The point is to detect an eventual pattern that can manifest social organization.

### **East Pomerania: Among Cross-Cultural Contacts in the Area of Baltic Sea and Central Europe during the Late Bronze and the Early Iron Age**

**Kamil Niedziółka** (University of Gdańsk, Gdańsk)

The end of the Bronze Age and the beginning of the Iron Age was a time of significant cultural changes in the East Pomerania. This is especially visible in burial rite: new elements like house and face urns, or cist graves appeared. Those forms spread also in the other areas of Middle Europe and Scandinavia, and it is clear that the Baltic Sea was an important factor in the diffusion of this phenomenon. The aim of this presentation is to show East Pomerania from wider North and Middle European perspective at the turn of the Bronze and Iron Age. Visible cultural connections across the Baltic Sea in those periods were not limited only to dispersion of artefacts but also ideas and people. It is also important to mark the evolution in cultural development, which took place in the East Pomerania: from cultural periphery during the end of the Bronze Age, to the initial zone of new traditions (so-called Pomeranian culture), which expanded on almost all areas of modern-day Poland, during Hallstatt D period. Still, many problems are unsolved, but it seems, that wider studies conducted upon those changes can give new opening in research on discussed topic.

### **Scandinavian “Cultural Package” of the Middle Bronze Age in North Estonia - A Result of Migration or Local Cultural Explosion?**

**Valter Lang** (University of Tartu, Tartu)

In the Middle Bronze Age, around 1200 BC, a strong Scandinavian cultural impact occurred in what is now northern coastal Estonia. In the Early Bronze Age this region was characterized by a rather sparse settlement with poor archaeological finds. This new and strong Scandinavian impact involved a new type of graves, i.e. the overground monumental stone-cist graves, an early pre-Celtic field system, cup-marked stones, and artefacts of western origin. The distribution of these kinds of sites in coastal Estonia has earlier been interpreted in different ways, either by the immigration from the west or by centre-periphery relations and the so-called cultural explosion of local developments. The main reasons for different opinions came from difficulties of dating the sites and corresponding contexts. As we recently have succeeded in put both the stone-cist graves and fossil fields into more precise chronological frames, i.e. into the Middle Bronze Age, the interpretation of these sites as indicators of immigration has got more support.

### **Figurative Creolization and Cross-Cultural Interaction**

**Anna Wessman** (University of Gothenburg, Gothenburg)

South Scandinavian Rock Art in a Baltic Sea context South Scandinavian Bronze Age rock art appears in several regions that connects to the Baltic Sea. Despite these obvious spatial situations, the figuratives has traditionally and mainly been addressed from a “western” Scandinavian perspective. The images on the rocks display mobile social features and things like ships, antropomorphs and metals, indicative of seafaring and trade. Moreover, most rock art sites have been made close to the seacoasts, lakes or other watercourses. In this perspective, the rock art areas could represent transit zones, aggregation

sites or arenas for articulating sea journeys or events at sea. Thus, I would like to discuss these specific rock art areas in the light of temporal and social processes such as creolization, hybridization and cross-cultural interaction between Scandinavia and the Baltic regions during the Bronze Age.

### **Stone and Bronze Age Paddle as a Tool, Cult and Ideas Transmissions Objects in Baltic Sea Region**

**Dominika Kofel** (Nicolaus Copernicus University, Toruń), **Mateusz Popek** (Nicolaus Copernicus University, Toruń), **Wiktor Trojanowski** (Nicolaus Copernicus University, Toruń)

A paddle, in the most general term, is a tool that turns a watercraft into motion. Therefore it is seen as object of a very utilitarian function. Its form and construction should make possible to move the vessel only with strength of a rower. However there is a probability that paddles, especially in the Prehistory, might have had some other purpose. The focus of the speech is directed towards finds of paddles from the Baltic area dated to the Stone and Bronze Age. The discussion is divided into several parts. The first to analyse are paddles as indicators of existence of boats and techniques of using them. The second are aspects of water transport that contributed in trade and spreading of ideas. The last one to debate is the ritual meaning of these objects. Both, cons and pros are going to be presented in order to reconsider this theory. Based on these three aforementioned discussion parts, we will present a re-interpretation model of paddles as tools, cult objects, and a proof of transport, migration and exchange.

### **Pots Crossing the Water: Corded Ware Culture Exchange Networks around the Baltic Sea in Light of Chemical Data (SEM-EDS, PIXE)**

**Elisabeth Holmqvist-Saukkonen** (University of Helsinki, Helsinki), **Åsa M. Larsson** (Societas Archaeologica Upsaliensis, Uppsala), **Aivar Kriiska** (University of Tartu, Tartu), **Vesa Palonen** (University of Helsinki, Helsinki), **Kenichiro Mizohata** (University of Helsinki, Helsinki), **Tuomas Nissinen** (University of Helsinki, Helsinki), **Markku Oinonen** (University of Helsinki, Helsinki), **Jyrki Räisänen** (University of Helsinki, Helsinki)

Neolithic Corded Ware Culture Complex (Battle Axe culture) spread across the Baltic Sea region ca. 2900/2800–2300/2000 BCE. The CWC pottery traditions of Finland, Sweden, and Estonia are distinctive yet interlinked, indicating inter-regional knowledge transfer across the Baltic Sea and possible arrival routes of the migration-associated culture. The question remains, however, to what extent and direction actual material exchange (pottery transport) occurred. Altogether 160 ceramic vessels from 24 CWC sites in Finland, Sweden and Estonia were analyzed by scanning electron microscopy with energy dispersive spectrometry (SEM-EDS) and particle induced X-ray emission (PIXE) to examine their provenance and technological adaptation. Elemental compositions of clay pastes in both ceramic bodies and the grog-tempers were determined by SEM-EDS. Trace elemental data provided by PIXE was employed for group discrimination. The results bring to light the diversity of the CWC potting traditions at different manufacturing areas and reveal intensive cross-regional contacts and pottery exchange across the Baltic Sea. The exchange is attested by pots identified as imports but notably primarily by the grog temper – the remaining essence of the majority of the pots that crossed the water. This illustrates archaeologically practically “invisible exchange,” brought visible only by the elemental analysis of the grog temper.

### **Fundamental Change in Economy and Trade as well as Culture and Ideology in the East Baltic around 3200/3000 cal BC**

**Giedrė Piličiauskienė** (Lithuanian Institute of History, Vilnius), **Heidi Luik** (Tallinn University Institute of History, Tallinn), **Gytis Piličiauskas** (Lithuanian Institute of History, Vilnius)

Domestication of flora and fauna species is among the most important achievements humanity has ever made. In the Northeastern Baltic region, farming economy started only around 3200/3000 cal BC. It can be argued that the Neolithisation process went hand in hand with significant cultural change, i.e. the shift from pointed-bottomed Mesolithic to flat-bottomed Neolithic pottery. Moreover, one can also find enough evidence of changing distant trade trends. The “Amber to slate” route connecting the South Eastern Baltic with Karelia and Finland was displaced by new contacts with the Southern Baltic. What or who could have caused those substantial changes, and do we have enough and reliable evidence for efficient research of the above-mentioned processes? Data from the most recent archaeological and zooarchaeological investigations at the Neolithic Šventoji and Nida sites (coastal Lithuania) encourage a discussion on the Neolithisation of the East Baltic from several perspectives, i.e. trade routes, subsistence economy, and culture.

### **The Pressure Handle Cores in Oder River Estuary (NW Poland) - A Local Variants of General Concept**

**Michał Adamczyk** (University of Szczecin, Szczecin), **Katarzyna Orzyłowska** (University of Szczecin, Szczecin)

The Pressure Handle Cores in Scandinavian tradition are indicators of Kongemosian Culture (or: Late Phase of Maglemosian). In our study, we collect the handle cores from Oder River Estuary Zone and try to answer the questions of the technological variability. Through the experiments and technological analysis we point out the variants of general concept of handle core. The main aims of this research is to follow two questions: ‘What are the local variants of handle cores?’

and 'What causes the local differences in general concept?'. By searching for the answers we hope to establish new point of view for Late Mesolithic on Polish Baltic Coastal Zone.

### **South Eastern Baltic Sea Seashore Change, Its Settlements and Contacts of the Coasts Inhabitants in the Beginning of Holocene Period**

**Vladas Žulkus** (Klaipėda University, Klaipėda), **Algirdas Girininkas** (Klaipėda University, Klaipėda), **Linas Daugnoras** (Klaipėda University, Klaipėda)

Based on the South-Eastern shore shift and archaeological research data it is possible to determine that in the Late Paleolithic, Mesolithic and Mid-Neolithic periods the Baltic Sea shore was located further to the East from the current shore position. The reason behind this theory is that monuments belonging to the mentioned periods are found in the ancient Baltic Sea lagoon area, while none of these Early Mesolithic and Early Neolithic monuments are found in the current Baltic Sea shore area. Currently they are of course submerged under the Baltic Sea. Newest underwater cultural landscape research of the currently submerged Baltic Sea shore enables us to determine that Early Mesolithic monuments have to be located in the underwater landscape of South Eastern Baltic Sea area, where Yoldia Sea transformed into Ancylus Lake, currently 24-29 meters below the sea surface. Early Neolithic ancient shorelines, on the other hand, were formed after the first Littorina transgression in the Early Atlantic period and are currently located 10-12 meters below the sea level. These findings are built upon the most recent underwater and surface archaeological and bio-archaeological excavation data. The coastal changes and archaeological research material correlated with the other Baltic coastal of the relevant period material.

## **POSTER**

### **Changes in the Pottery Tradition in the 4-3rd millennium BC in the Eastern Part of the Gulf of Finland**

**Margarita A. Kholkina** (Saint-Petersburg State University, Saint-Petersburg)

In the 4-3rd millennium BC in the Gulf of Finland region the Typical Comb Ware changed into different groups of organic- and asbestos-tempered ware as a result of difficult cultural and historical processes. The research task was cultural and chronological attribution of these new groups of pottery as an effort to shed light on these processes. Pottery of the 4-3rd millennium BC is rather diverse and represents several different types, but according to chronology it can be subdivided into two large groups. The pottery of the first group appeared in the second half of the 4th millennium BC and has much in common with the former Typical Comb Ware; the main difference consists in the new admixture composition. The second group appeared in the 3rd millennium BC. The new types - the Corded Ware, the Early Textile Ware and others - must have co-existed with the previous group. Organic- and asbestos-tempered pottery of this period is likely to have a number of distinctive features - S-shaped profile, flat bottom, textile imprints - which could be probably seen as an influence of the Corded Ware tradition. The study was supported by RFBR, research projects No. 12-06-00348a "Geoarchaeology of Karelian Isthmus".



### **T01S024 - ARCHAEOLOGY OF THE EARLY MEDIEVAL SLAVE TRADE IN NORTHERN EUROPE: LOOKING FOR THE MATERIAL EVIDENCE**

**Organizers: Marek Jankowiak** (University of Oxford, Khalili Research Centre, Oxford), **Felix Biermann** (Georg-August-Universität Göttingen, Seminar für Ur- und Frühgeschichte, Göttingen)

With much delay, compared to the archaeology of Africa or of the Americas, the imprint of slavery and slave trade in the archaeological material begins to be conceptualised for the early medieval Europe. Recent studies shed new light on the role of the slave trade in the economic revival of Northern Europe in the early Middle Ages (McCormick 2001). But the emerging historical consensus has so far found little echo among the archaeologists, who only start to show awareness of the significance of slavery and of its potential material traces. We think that time is ripe to bridge this divide. We propose to gather, for the first time, archaeologists and historians working on early medieval slavery, and to lay foundations for a more comprehensive approach to what seems a seriously underestimated, yet crucially important, phenomenon of the European history. We intend to survey geographical areas from the British Isles to Russia looking for material evidence of slave trade, such as enclosures, shackles, specific burial types and, on a more general level, evidence for sudden population movements and increasing insecurity; we will also reach to specialists in other slave trade systems, Ancient and African, for inspiration and points of comparison.

## **ORAL PRESENTATIONS**

### **Can the Early Medieval Slave Trade Be Identified Archaeologically?**

**Marek Jankowiak** (University of Oxford, Khalili Research Centre, Oxford)

I will start with the historical framework for the early medieval slave trade, arguing for the massive character of the trade in Slavic slaves in the 9<sup>th</sup>-11<sup>th</sup> centuries, suggested, among others, by the appearance of the word 'slave' in the 10<sup>th</sup> century. The

main part of my paper will consist in a survey of material evidence that can tentatively be connected with slave acquisition and trade. On the one hand, insecurity brought about by the generalised slave hunting is in our case reflected by the increase of finds of weapons and by the construction of hundreds of hillforts within a short period of time in the 9<sup>th</sup> and 10<sup>th</sup> centuries. On the other hand, the massive trade in Slavic slaves required adequate infrastructures, such as enclosures and markets. If the latter can be identified from written sources, the former may correspond to hillforts that display special characteristics, such as excessive size in comparison to the surrounding population, the absence of a permanent settlement within the ramparts, a remote location, evidence for centralised production and distribution of food, and unusual construction types.

### **The Norm and the Subaltern. Identifying the Unfree in an Early Medieval Society**

**Anna Kjellström** (Department of Archaeology and Classical Studies, Stockholm University, Stockholm)

It has been acknowledged that a large part of the Viking Age-early Middle Age trans-national economic system was based on slave trade. The duties of the unfree intersected all aspects of everyday life and slavery is believed to have constituted a major part of the economy. From a Swedish perspective, although accepted among scholars, there is little scientific archaeological evidence to substantiate these notions. How can this subaltern group, excluded from the hegemonic power, be identified? Few written sources deal with the life of the unfree and the material culture is ambiguous. Only a few graves display an archaeological context suggesting presence of unfree individuals and the recognition problem increase since the hierarchical position of a thrall could differ greatly. This paper endeavours to approach the subject through bioarchaeological research. During later years, it has been demonstrated that the arrangement of the body, morphological features of the skeleton, results from stable isotope analysis and possibly aDNA, can help not only to recognize buried thralls but also to add to the discussion regarding the varying social roles of the unfree in the contemporary society.

### **Living on the Edge: Investigating Slavery in Early Medieval Western Britain**

**Katie Hemer** (Department of Archaeology, University of Sheffield, Sheffield)

It has long been recognised that trade and contact between western Britain, Continental Europe and the Mediterranean continued into the post-Roman period, this being evidenced principally by imported pottery recovered from high-status settlement sites in south Wales (e.g. Dinas Powys, Glamorgan) and southwest England (e.g. Tintagel, Cornwall). As Michael McCormick (2001) demonstrated, the transportation of passengers was also a lucrative business in the early medieval period, individuals sold into slavery being a particularly valuable cargo. Documentary evidence, including an entry in the Llandaff charters from Wales, suggests that slavery did exist in early medieval western Britain. Consideration must therefore be given to how this trade might be identified within the archaeological record. Through the integration of archaeological, historical, and funerary evidence with stable isotope data, this paper seeks to explore the reality of slavery as an aspect of trade and contact between western Britain and Europe during the early medieval period.

### **Tacit Knowledge of Thralls – Style Negotiation among the Unfree in 11th- and 12th-century Denmark**

**Mats Roslund** (Institute of Archaeology and Ancient History, Lund University, Lund)

Thralls and ambáttts are almost invisible as a social category in archaeology. However, it is possible to argue that unfree individuals produced household ceramics. They can be observed until the professionalization of pottery production in the beginning of the 13th century. In this paper, the social and cultural transmission of pottery between Slavs and Scandinavians from ca 900 to 1250 AD is discussed. Identity negotiation is often assigned to higher social strata in societies, such as emblematic style displayed in distinctly visual objects. However, constructions of identities occur on all social levels, including disrespected individuals. Household pottery was handled by the lowliest persons in society. When changes occurred, inspiration came from individuals living in close quarters, observing and learning by doing. Structuration theory is often referred to in studies on style transfer. This perspective does not adequately answer the question how the transfer occurred. To grasp the process of style negotiation we must consider the temporal and social premises on a human level. Theoretical approaches on tacit knowledge as well as intersectional identities are used as a means to understand how the Slav-Scandinavian encounter resulted in material hybridity and social change among slaves.

### **The Slave Trade in Great Moravia: Reality or Fiction?**

**Jiří Macháček** (Department of Archaeology and Museology, Masaryk University, Brno)

In the 9<sup>th</sup> century Great Moravia, which could be described as an early state or rather a cyclical chiefdom, was the dominant power in eastern Central Europe not only in terms of politics, but also in cultural ways. It is certain that some of the Great Moravian centres were nodal-points in the networks of long-distance trade or inter-regional exchange. This is supported, for example, by the distribution of Byzantine coins, delimiting the corridor between Venice and Moravian sites along the ancient Amber Trail. From east or south came brocade or silk and glass lamps. The presence of foreign merchants in early medieval Moravia, especially Jewish Radaniya and Venetians, is confirmed by written sources. The Custom Regulations of Raffelstetten, dating to 904, and some Muslim sources mention “the main Moravian market”, but thus far it has not been

possible to localize this place. In the paper will be discussed the hypothesis, that one of the most desirable goods leaving Moravia in the 9<sup>th</sup> century for Spain across the Alps and through Venice to the Near East were slaves (McCormick; Třeštík; Verhulst). Unfortunately, this “commodity” is archaeologically badly visible.

### **Slaves – Prisoners – Domestic Animals? Iron Shackles – The Archaeological Record of the First millennium AD in Europe**

**Joachim Henning** (Institut für Archäologische Wissenschaften, Goethe-Universität Frankfurt am Main, Frankfurt am Main)

The distribution of archaeological finds of iron shackles in Europe in the first millennium AD shows significant differences in space and time. The paper will discuss possible archaeological and socio-economic reasons for that picture. Furthermore structural details of the fetters, iconographic evidences and ethnographic parallels are examined in order to distinguish different destinations of forms of fetters, chains, manacles etc.

### **Violence, Warfare and Slavery in Early Medieval North-Western Slavic Area**

**Felix Biermann** (Seminar für Ur- und Frühgeschichte, Georg-August-Universität Göttingen, Göttingen)

Since the 8<sup>th</sup> century the economic situation and the social complexity of the north-western Slavic settlement territories increased rapidly – Scandinavian-Slavic coastal trading places arose, strongholds were built, powerful tribal rulers are visible in written sources. Archaeological finds of human victims of force, weapons and military equipment, fire debris at hillforts and other archaeological record indicate that this process was not only a result of economic growing and peaceful development, but more of violent times and wars between Slavic rulers struggling for power as well as between the north-western Slavs and groups from abroad. In this time significant quantities of Arabic silver coins flowed into this territory, as a result of intensive trade connections between peoples of the Baltic Sea region – including north-western Slavs – and the Orient. Written sources suggest that an important merchandise object have been people. The paper deals with the relationship of violence, warfare and slavery from 8<sup>th</sup>-11<sup>th</sup> century in the northern part of west Slavic regions, today Poland and Germany. It will focus on the function of the strongholds, the potential role of the coastal trading places as slave markets, and the meaning of these circumstances for the economic and social development of early medieval Slavic society.

### **Recent Approaches to the Archaeological Study of Slavery in Sub-Saharan Africa**

**Paul Lane** (Department of Archaeology and Ancient History, Uppsala University, Uppsala)

Much of the research on slavery in Africa still relies heavily on documentary and oral sources and uses archaeology more as a means to materialize the practices of slave trading and ownership than as an independent source of evidence. Moreover, even where material evidence has been interpreted as indicative of either slave trading or slave ownership, alternative explanations can usually be forwarded. For instance, while iron shackles might attest to the presence of captives destined to become slaves, they could equally have been used for restraining wrongdoers. In the absence of supporting documentary evidence, verification of the presence of slaves may be difficult. Nonetheless, new information about the lives of slaves, the wider impacts of slave raiding and the organization of slave trading can be gleaned from archaeological analysis, and when several different material and landscape indicators occur together convincing arguments for the presence of slavery can be made. This paper reviews these emerging approaches to African settings, and assesses their possible relevance for the study of ancient slavery systems in other geographical and temporal contexts.

### **A Methodological Approach to the Archaeology of Early Medieval Slavery in Britain and Ireland**

**Janel Fontaine** (King's College London, London)

Though a great deal of thought has been placed into the archaeology of early medieval slavery for the Slavic lands, little of the sort has been investigated for Britain and Ireland. This is in spite of Britain and Ireland's importance in the development of north-western trade and the established presence of slavery in the early medieval period. However, it is possible to examine the archaeological methodology of the Slavic slave trade, and perhaps to apply a similar approach to Britain and Ireland. This includes an assessment of shackles, fortified settlements, numismatics, and, potentially, burials. It also requires consideration of economic indicators regarding the feasibility and sustainability of a slave trade. These in turn may determine to what extent pre-existing methodologies can be applied to Britain and Ireland, and perhaps reveal new indicators of slavery and the slave trade for this region.

### **The Decline of Dirham Importation to the Northern Lands**

**Mateusz Bogucki** (Institute of Archaeology and Ethnology, Polish Academy of Sciences, Warsaw)

The beginnings of dirham importation into the Northern lands are relatively well studied. According to numerous written sources and historical, archaeological, and numismatic studies, besides other goods, slaves were the main equivalent for the millions of coins exported from the Abbasid and Samanid states to the Northern lands. Much less attention has been



paid to the last, final wave of dirham inflow into the Baltic zone. In the last decades of 10<sup>th</sup> century the quantity of oriental silver inflow decreased dramatically – the most recent dirhams found in Scandinavia and West Slavic lands are dated to shortly after 1000. Several explanations have been proposed for this phenomenon, including political, economic, and others. In the present paper, I will focus on Polish finds from the final phase and will try to offer some source-based explanations for the decline of dirham importation to the Northern Lands.

### **The Zanj Slave Trade in the Indian Ocean during the 8th-10th centuries**

**Mark Horton** (Department of Archaeology and Anthropology, University of Bristol, Bristol)

Recent work along the East African coast has highlighted the scale of the historically documented slave trade, known as the Zanj. These African slaves reached the Middle East in large numbers up until the period of the Zanj revolt (869-883), and in smaller numbers thereafter. The trade was maritime – based, and involved the supply of largely male slaves. The Zanj trade has many points of similarity to that of the northern slave trade, and was an important factor in the development of the Abbasid caliphate.

### **Concluding Remarks**

**Michael McCormick** (Harvard University, Cambridge)

This session is a useful opportunity for reviewing the material evidence that European archaeologists are beginning to assemble in bulk for the functioning of the slave trade in the early middle ages. Comparison with the methodology and findings of archaeologists working in sub-Saharan and East Africa is another feature of the session, and this widening of European horizons should provide inspiration and stimuli for European archaeologists and historians, alongside the occasional caveat.



## **T01S025 - SOCIETY, POWER AND INFLUENCE IN ATLANTIC EUROPE**

**Organizers:** **Jessica Smyth** (Cardiff University, Cardiff), **Jim Leary** (University of Reading, Reading), **Karl-Göran Sjögren** (University of Gothenburg, Göteborg), **Stephen Davis** (University College Dublin, Dublin)

The Atlantic façade has long been characterised by its Neolithic and Bronze Age monumental complexes, from the stone rows at Carnac in Brittany to the megalithic landscapes of Orkney in northern Scotland. However, how well do we understand the social forces that drove the creation of ceremonial centres? Were they the product of stable, surplus-producing egalitarian societies or unstable hierarchies grasping at legitimisation? Such questions have of course been addressed in the past, notably by Renfrew (1973; 1976), but we are now in a position to consider things afresh. Major research projects are underway at Stonehenge, Orkney and the Boyne Valley, revealing new detail about spheres of influence across the Atlantic seaboard; Bayesian modelling is providing real insight into the tempo of social change and the rise and fall of monumentality; isotope analyses of human, animal and plant populations afford us glimpses of mobility, diet and economy in prehistory, all complemented by recent overviews of how inequality and power relations are created in society (Flannery & Marcus 2012). We welcome contributions foregrounding the social drivers behind monument complexes, from Scandinavia to southern Iberia, exploring how local dynamics may have influenced, and been influenced by, those of the wider Atlantic zone.

## **ORAL PRESENTATIONS**

### **Enclosures in Southern Iberia - A Comparative Approach**

**Victor Jimenez-Jaimez** (University of Southampton, Southampton)

The construction of enclosed earthwork monuments emerged from the VI to the III millennia BC in different regions of Neolithic Europe at slightly different times. In southern Iberia, ditched enclosure sites are known from the IV millennium BC, while walled enclosures appeared in the III millennium BC. Traditionally, most Iberian archaeologists have interpreted them both as ‘fortified settlements’: permanently inhabited centres with robust defensive systems composed of either walls or ditches. Some of them are of such exceptional size that they are among the largest prehistoric sites in Europe. As a result, some Iberian archaeologists have argued that the southern Iberian Chalcolithic (roughly the III millennia BC) saw the emergence of unprecedented levels of social inequality and the decline of kinship as the basis for most human social relationships. If true, this represents the development of some of the earliest ‘complex communities’ in Western European Prehistory. Yet, in most other areas of Europe, enclosure sites are interpreted very differently, often as seasonal gathering places for the agglomeration of smaller-scale, more mobile communities that remain based largely on principles of kinship. In this paper we will explore the implications of this contradiction between the Iberian and the wider European models.

### **A Rocky Relationship: Lithic Tools, Identity and Mobility in the Bronze Age Atlantic**

**Catherine Frieman** (The Australian National University, Canberra)

The narrative underpinning of nearly all archaeological models of Atlantic connectedness and social dynamics relies on the movement of metals. Copper and gold (and later tin) connect Iberia to Ireland, Britain to Bavaria and Lower Saxony to the

Loire Valley. Wealthy individuals and communities are perceived as having competed with each other in their acquisition and display of prestigious metal objects, and major monumental complexes are among the landscape features associated with these metal-trading elites. Yet, metal and metallurgy were not the only materials or technologies traversing Europe's Atlantic routeways in the Bronze Age. In this paper, I will focus on the sudden adoption of distinctly continental European lithics—flint daggers and ground-stone battle axes—during the British Early Bronze Age and their links to the Atlantic metal trade and to the emergence of localised and distinct identities among communities in the British Isles. In particular, I will examine the ways that stone tools were used to create an idea of lineage which appears likely to have been tied to specific points of contact and directions of movement within the Atlantic network.

### **An Early and Middle Neolithic (3800-3000 BC) Enclosed Megalithic Complex in South-West Scania, Southern Sweden**

**Magnus Andersson** (National Heritage Board of Sweden, Stockholm), **Magnus Artursson** (National Heritage Board of Sweden, Stockholm)

The site Döserygg ("The Dolmen Ridge") in south-west Scania, southern Sweden, was excavated in 2006–2008 by the Swedish National Heritage Board. The excavation revealed a megalithic complex dating to the Early and Middle Neolithic. According to typology and radiocarbon dates, the complex was established around 3800 BC and it was actively used for approximately one thousand years. The site displays a rare combination of finds and monuments, reflecting different aspects of ritual life. It comprises the remains of at least twenty dolmens, a palisade enclosure, standing megalithic stones in a line, stone circles and stone packings. The site also yielded a rich find material of grave goods, ritual deposits and votive offerings. Analysis of the large and complex material from the excavations is still in progress and additional research excavations at the site are planned. This paper focuses on the chronology and phasing of the site, the topographical location and shore-displacement data in the area. It also deals with questions about social relations as part of an emergent complexity in southern Scandinavia during the fourth millennia BC.

### **The Faces behind the Façade: Monuments and Their Associated Practices in Neolithic Britain**

**Benjamin Chan** (Leiden University, Leiden)

Over the last forty years the analysis of monuments has lain at the center of our understanding of Neolithic societies. Interpretative approaches toward monuments range in scale from the overarching view of Renfrew's emerging chiefdoms to embodied perspectives focusing on their materiality. Regardless of analytical scale, most accounts treat monuments as complete architectural forms and fail to grasp the significance of the wider activities that surrounded their construction and use. This paper will show how recent excavations at both Durrington Walls, Wessex and the Ness of Brodgar, Orkney have revealed the milieu of activities that surrounded these sites. These involved both routine daily subsistence practices and also episodes of feasting and mass consumption. The manner in which eating, drinking, sleeping, stone working, wood working and other technical activities were implicated in the use of ceremonial monuments questions the persistent notion of a dualism of ritual and domestic life. Moreover, it suggests that the wider practices surrounding the construction and use of monument complexes provided an arena for social reproduction, the transmission of skills and the negotiation of social identities and were one of the driving forces behind the spread of ideas and technological practices over large geographic areas.

### **Building the Monuments that Made Late Neolithic Wessex (UK)**

**Jim Leary** (University of Reading, Reading), **Dave Field** (Freelance archaeologist, Reading)

Recent archaeological investigations of many of the great monuments of Late Neolithic Wessex in the UK have allowed the chronology of these sites to be assessed anew, placing them in greater spatial and chronological context than ever before. This has indicated a lengthy gestation to many of the monuments, indicating a more intermittent, even piecemeal construction, rather than the neat architectural blueprint established by antiquaries. While the latter conjures images of designed and completed building projects, the former may allow an insight into some of the processes involved. The construction of monuments can thus be placed on a more human level. This paper describes how this work has contributed to our knowledge of the relationship of these sites.

### **Time and Stone: The Emergence of Megaliths and Megalithic Societies in Europe**

**Bettina Schulz Paulsson** (Christian-Albrechts University, Kiel)

Most of the ~35'000 still existing European megaliths, which include megalithic tombs, standing stones, stone circles, alignments, and megalithic buildings or temples, were constructed during the Neolithic and the Copper Ages and are located in coastal areas. Strikingly, the appearance and the architectonic concepts of these megaliths are similar or even identical. The question arises if there is a single, original source from where a megalithic movement spread throughout Europe or whether these structures developed independently and/or even convergent in the singular regions with similar



forwarding factors? This paper presents the final outcomes of the “Time and Stone” project and the analysis and re-evaluation of ~2230 available radiocarbon results from pre-megalithic, megalithic and to the megaliths contemporaneous contexts and the consequent application of a Bayesian statistical framework. The emergence of megaliths could be corrected, in some regions even up to ~1000 years, and it was possible to establish a supra-regional synthesis regarding the emergence of megaliths and megalithic societies in Europe. This contributes new evidences to the discussion on mobility, transfer and interaction between the Neolithic societies in the 5th and 4th millennium cal BC and the social and economic conditions for the creation of megaliths and monuments in Europe.

### **Powerful Images: The Social Use of Megalithic Art in Atlantic Europe**

**Guillaume Robin** (University of Cambridge, Cambridge)

This paper will address two overlooked aspects of Atlantic megalithic art in a social perspective. The first one is the variability of art. While regular forms of tomb architectures are found in each region, it is striking that there are no standards for the ornamentation of tombs. Why were only a minority of monuments decorated in Ireland, Western France or Galicia? Why are there so many quantitative and qualitative differences in the art of decorated tombs within these regional entities? Drawing upon recent research results on Neolithic tomb art in Sardinia, this paper will discuss the indexical properties of Atlantic tomb art and the relationships between social inequality and art variability. The second aspect discussed by this paper will be the evidence of reuses of decorated stones in the building process of megalithic tombs, and the levels of social change or continuity that can be interpreted from these practices.

### **The Big Myth? Spontaneous Place Making at the Leadketty-Forteviot Complex, Scotland, UK**

**Kenneth Brophy** (University of Glasgow, Glasgow), **Gordon Noble** (University of Aberdeen, Aberdeen)

What are the social drivers behind monument complexes? In this paper, this question will be addressed in light of our excavations at the later Neolithic Forteviot-Leadketty monument complex in Perthshire, Scotland, UK. Two adjacent major monumental centres emerged here after 3000BC in the River Earn valley. Both places were dominated by large scale timber monumentality with massive enclosures at both, hundreds of metres in diameter and defined by big oak posts. This was undoubtedly one of the most significant power centres in Britain in the 4th millennium BC, constructed and maintained over many centuries, presumably the focus of large scale gatherings, communal effort, requiring the reshaping of the surrounding landscape. Yet why was this place so important? How did it come to be so important? And when? We have almost no evidence for activity before 3000BC, the early Neolithic. Is it possible for such complexes to spontaneously emerge in places with no long term ancestral tradition? Did the establishment of a large cremation cemetery in the 29th century BC at Forteviot represent an attempt to create an ancestral mythology, or did places become important, and retain significance, in other ways? How did placemakers make places in the Neolithic?

### **The Boyne Valley: Local Change and Continuity in Wider Context**

**Gabriel Cooney** (University College Dublin, Dublin), **Stephen Davis** (University College Dublin, Dublin)

The narratives of social change in the Boyne Valley during the Neolithic have focused on the period before and after 3000 BC, with the most complex and monumental expression of the passage tomb tradition, seen in the mega-tombs of Dowth, Knowth and Newgrange, followed by the enclosure/Grooved ware phase of the Late Neolithic, again expressed at a mega-scale in monuments like the Dowth henge. When compared with the understanding of the chronology and trajectory of events in other Neolithic monumental complexes in Atlantic Europe, there has been relatively less focus on the local earlier Neolithic background in understanding the emergence of these expressions of social mobilization and identity. And yet it has been argued that the passage tomb tradition itself may have an extended chronology in Ireland and there is clear evidence of the establishment of Neolithic communities in the Boyne Valley from early in the Neolithic. The questions posed in this paper focus on the need to understand this local social background in any explanation of the emergence of the Boyne Valley as a focal point in the wider Atlantic world. How significant were social and settlement changes in sparking the construction of the mega-monuments?

### **The Invisible People? Passage Tomb Communities of the 4th millennium BC**

**Jessica Smyth** (Cardiff University, Cardiff)

In Ireland and Britain, the period of the Neolithic which perhaps most captures the public imagination is the end of the 4th millennium BC, when the great passage tombs such as Newgrange and Knowth in the Boyne Valley, Maes Howe in Orkney and Bryn Celli Ddu on Anglesey are erected. Passage tombs appear all along the Atlantic coast of course, but the connections between tomb builders across the Irish Sea Zone appear particularly direct, and to date there has been little targeted research on the societies that built them and how they might have been interconnected. We are a long way from understanding the social dynamics behind the growth of such monumental complexes. However, the recent emergence of datasets highlighting aspects of plant use, animal husbandry and settlement patterning during this period, in addition to

new suites of modelled  $^{14}\text{C}$  dates, provide us with some fresh insight into the social context of such activity. This paper pulls together the various strands of late 4th millennium BC life around the Irish Sea Zone, re-examining why these ceremonial complexes came into existence where and when they did.

### **Changing Times: Monuments and Power Structures in Atlantic Europe**

**Chris Scarre** (University of Durham, Durham)

Monuments of earth and stone are by their nature durable artefacts that evoke images of a venerable and unchanging antiquity. Structural sequences and chronology, however, highlight their mutable and cumulative nature, and suggest an association with transient and ephemeral power structures. In responding to the papers in this session, emphasis will be placed on the limitations and potential of the evidence, the relevance of the *longue durée*, and the shorter-term historical events and processes that we may sometimes be able to perceive.



### **T01S026 - APPROACHING DIFFERENT SETTLEMENT PATTERNS BETWEEN THE NORTHERN BALKANS AND NORTHWESTERN EUROPE IN THE NEOLITHIC**

**Organizers:** **Martin Furholt** (Institute for Pre- and Protohistoric Archaeology, University of Kiel, Kiel), **Martin Hinz** (Institute for Pre- and Protohistoric Archaeology, University of Kiel, Kiel), **Tibor Marton** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest), **Krisztián Oross** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest)

There seems to be a recurrent and rather stable dichotomy in the layout of settlements in Europe during the Neolithic. In the southeast, large, densely built settlements are opposed to sites showing more dispersed house arrangements in smaller habitats in the North and Northwest. The Central European Linearbandkeramik (LBK) settlements are smaller and seem to be much less organised internally, when compared to Vinča sites. Although there is considerable variability in settlement organisation within the LBK, when compared to those from the northern and western European Neolithic, settlement sizes and the degree of intrasite organisation seems to be much more pronounced. To focus the discussion, we want to concentrate on two areas and compare the evidence from the northern Balkans and southeastern Central Europe with that of the northern Central European loess areas and the adjacent lowlands. We want to examine settlement layouts associated with interregional developments, their social and environmental conditions and dynamics. The scope of the dialogue will be how real or intense these dichotomies really are and if speaking of such dichotomies can provide a viable framework at all, or whether more elaborated concepts should be applied.

### **ORAL PRESENTATIONS**

#### **Towards Identifying a (Proto-)Urban Development Pattern in the South-Eastern European Eneolithic**

**Sebastian Stan** ("Ion Mincu" University of Architecture and Urban Planning, Bucharest), **Cătălin Lazăr** (National History Museum of Romania, Bucharest), **Theodor Ignat** (Museum of Bucharest, Bucharest)

The aim of this paper is to analyze the settlement patterns from the Eneolithic period (the 5th millennium BC) in the South-Eastern Europe (Romania and Bulgaria). This chronological period is characterized by the development of the tell-type settlements, that thus reflect a sedentary population, a demographic growth and also a general social and economical progress. Following the available data, it becomes obvious that the way of organizing the buildings in an area of inhabitation varies from one settlement to another, but certain patterns can be identified. Our analysis shall focus on the similarities and differences between certain settlements from the Balkans, in an effort to determine the existence of specific (proto-)urban settlement patterns in studied time gap and area. The second step of the research effort is to identify the principles that govern (proto-)urban development in the Eneolithic period. This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS – UEFISCDI, project number PN-II-ID-PCE-2011-3-1015.

#### **Settlement Layout, Intrasite Organization and Site Catchment of Vinča - Belo Brdo**

**Kristina Penezić** (Institute for Balkan Studies SASA, Serbian Academy of Sciences and Arts, Belgrade), **Nenad N. Tasić** (University of Belgrade, Belgrade)

Vinča – Belo brdo is the type site for the Neolithic Vinča culture, known for more than hundred years, over 9 meters of archaeological debris that provided the chronological sequencing for the whole culture as well as for its complicated stratigraphy. The ongoing excavations provided insight into intrasite organization and house arrangements in the final phases of this tell-settlement. Recently, some of the research focuses are the analysis of settlement size and layout, environmental conditions before and after Neolithic occupancy and catchment of such a big site. Presented will be results of recent excavations, drilling programme and geophysical prospection. They are showing the size of the settlement at its maximum extent and one separated occupation cluster 200 meters away from the settlement. These results will be compared to

available data from some other major Vinča sites. Relationship of the settlement with its surrounding will be investigated, and a social dynamics model will be explored.

### **Invisible House and Visible Space in the Early Neolithic Settlements of the Northern Balkans**

**Tomislav Hršak** (Museum of Slavonia in Osijek, Osijek), **Boban Tripković** (Department of Archaeology, University of Beograd, Belgrade), **Rajna Šošić-Klindžić** (Department of Archaeology, University of Zagreb, Zagreb), **Jacqueline Balen** (Archaeological Museum in Zagreb, Zagreb)

Earliest agricultural populations of the Northern Balkans were relatively mobile, inhabiting large number of settlements for a short period of time. Architectural remains of such settlements are not easy to recognize and interpret in the archaeological record. The subject of this paper are these “invisible” places of early Neolithic settlements in different areas of Northern Balkans. They will be evaluated from two complementary steps. In the first step, authors reevaluate the interpretation of the published record and, in the second, new data from large rescue excavations that revealed large early Neolithic settlements. In conclusion, it will be argued that, despite the traditional interpretation, the above ground structures were important part of the early Neolithic cultural landscape of the region, and that the house and domestic activities associated with home were symbolically represented in the material practice of early agricultural communities.

### **Intercultural Encounters in the Periphery of the Balkans and Central Europe: A Case Study from the Northernmost Settlement of the Vinča Culture (SE Transdanubia, Hungary)**

**János Jakucs** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest), **Vanda Voicsek** (Janus Pannonius Museum, Pécs)

The authors want to take the opportunity to give an introduction to the recently discovered site at Szederkény-Kukoricadűlő in south-east Transdanubia (Hungary). The settlement is located 40km north of the Drava river, lying above the Karasica stream, a right-bank tributary of the Danube. According to the well-known typological markers, the archaeological material from Szederkény shows strong resemblances to the early Vinča assemblages of Central Serbia, the Srem and the Banat regions. Although the material culture clearly has strong affinities with the northern Balkans, the architecture of the settlement shows a completely different characteristics. The Vinča pottery is associated with typical Central European LBK settlement layout and structures. However the remains of the posthole structures were poorly preserved, houses could be confidently identified from the elongated pits flanking them. These phenomena raise several questions on the factors that affected the emergence of Neolithic settlement structures in Central Europe. At the same time, they add new perspectives to the research of cultural entanglement between the communities of the discussed transitional zone on the northern fringes of the Balkans in the second half of the 6th millennium BC.

### **Somewhere in the Intersection – The LBK Communities of Southern Transdanubia**

**Tibor Marton** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest), **Krisztián Oross** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest)

Two different regions have been intensively investigated in the southern Transdanubian distribution of the Central European Linearbandkeramik culture (LBK) during the last decade. On the southern shore of Lake Balaton an extended LBK settlement was excavated at Balatonszárszó-Kis-erdei-dűlő. The other area discussed in the paper is the Tolnai Sárköz, a floodplain between the southern Transdanubian hills and the Danube, lying about 80km to the southeast. Significant impact of the early Vinča culture could be detected at first in the pottery assemblage at Tolna-Mözs, one of the recently discovered sites of the latter region. The phenomenon can not be restricted to this single site, since we have knowledge about very similar LBK find assemblages from other settlements in its vicinity. In contrast, the forms and decorations resembling the ceramic material of the Vinča culture are exceptional in the assemblages of the Balaton region. We will focus our discussion on those questions whether the detected Vinča impact in the Tolnai Sárköz and its decisively weaker presence on the Balaton area is also reflected in the intrasite settlement patterns and whether the analysis of the settlement layouts enables any assumptions about altering social organisation towards the north.

### **Interregional Networks: Szécsény-Ültetés in a Comparative Context**

**Szylvia Fábián** (HNM National Heritage Protection Centre, Budapest), **Roderick B. Salisbury** (Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology, Vienna), **Gábor Bácsmegi** (Munkácsy Mihály Museum, Békéscsaba), **Gábor Serlegi** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest)

A macro-regional comparative approach to LBK settlement organization suggests that sites in southeastern Europe, which saw the initial development of the LBK, tend to be more densely occupied, with more spatial coherence, than sites well outside the Carpathian Basin to the north and west. Settlements falling spatially and culturally between these areas are less well known. The Neolithic settlement of Szécsény-Ültetés lies in the northern part of the Carpathian Basin, at the boundary

between the western, or Transdanubian LBK and the eastern, or Alföld, LBK variant, and at the northern edge of the LBK “heartland”. The site has been identified as Zseliz (late LBK), based on ceramics from surface collections and earlier excavations, but with ceramics diagnostic of the Transdanubian LBK, the Alföld LBK, Notenkopf, Vinča, Szakálhát and Bükk. As such, it played an important role in connecting north and south, east and west. For these reasons, the site seems ideal for examining both interregional interactions and the differences between settlement organization in the southern „core area“ and areas to the north and west. In this paper, we describe and compare the settlement pattern, chronology, environmental setting and evidence for interregional interaction at Szécsény-Ültetés, as an introduction to new research on these questions.

### **Fluid Communities? Dynamics of Neolithic Social Organisation and Settlement Patterns in South-Eastern and Central Europe**

**Martin Furholt** (Institute of Pre- and Protohistory, Christian-Albrechts-University Kiel, Kiel)

Village communities in the European Neolithic are commonly seen as stable, closed and immobile social groups, mainly based on deeply rooted kinship ties, although especially Isotope data indicate a much more marked heterogeneity of individual patterns of behaviour within settlements. The settlement patterns known from the archaeological record have the potential to give us information about the forms of social organisation, but in a chronological and regional perspective they might also inform us about the stability of social patterns, a perspective, however, that has been applied too seldom to the rich corpus of settlement plans available. In this contribution, dynamics of and between the Balkan and Central European early Neolithic settlement patterns will be explored, starting from the Carpathian Basin, concentrating on the LBK settlements of SW-Slovakia and Transdanubia.

### **Changes in Settlement Patterns in the Neolithic and Eneolithic in South-Western Slovakia**

**Peter Tóth** (Archaeological Institute of Slovak Academy of Sciences in Nitra, Nitra; Department of Archaeology of Faculty of Arts Comenius University in Bratislava, Bratislava)

Research on settlement patterns in the Neolithic and Eneolithic in Slovakia is in the focus of scientists for some time now. This interest is not systematic and rather intuitive. Situation changed with the emergence of geographical information systems. They allowed spatial analysis of hundreds of archaeological sites and the acquired knowledge is very exact and highly objective. In the study we will present results of spatial analysis in the Neolithic and Eneolithic in south-western Slovakia with focus on drainage basins of four rivers (Nitra, Hron, Ipel' and adjacent left bank of the Danube). With the use of GIS and statistical analyses the emphasis will be put on determining microregional differences. We argue that natural conditions (quality of soil, accessibility of water and so on) and the effort to their maximum utilization determined later development of cultures. Besides environmental parameters also settlement structure was analysed. There were observed huge differences among individual cultures and a pattern in distance among sites and dimensions of settlements was noticed. Detected changes were compared with cultural-historical development of the northern part of Carpathian region.

### **Settlement-Sites and the Community of Linearbandkeramik on the Loess Carpathian Foreland in SE Poland**

**Andrzej Pelisiak** (Institute of Archaeology Rzeszów University, Rzeszów), **Thomas Saile** (Lehrstuhl für Vor- und Frühgeschichte, Institut für Geschichte, Universität Regensburg, Regensburg), **Maciej Dębiec** (Lehrstuhl für Vor- und Frühgeschichte, Institut für Geschichte, Universität Regensburg, Regensburg), **Martin Posselt** (Lehrstuhl für Vor- und Frühgeschichte, Institut für Geschichte, Universität Regensburg, Regensburg)

Loess Carpathian Foreland in SE Poland is one most fertile and suitable zone for Early Neolithic inhabitation in Central Europe. From the 1950's numerous Linearbandkeramik (LBK) sites were known on this area but only few were excavated. During the last decade several field projects focused on the prehistoric settlements were carried out there including rescue excavations on the A4 motorway. Moreover multidisciplinary research focused on the LBK began, and in the last decade several LBK settlement-sites have been excavated and covered by large scale geomagnetic investigations. They provided great amount of new data referred to the spatial patterns of Early Neolithic settlements, LBK settlement layouts as well as to different economic activity and social organization of these communities. In result of large scale excavations long houses and numerous settlement structures were discovered but surprisingly only few LBK graves were noted. We will focused on the local inter- and intra-site patterns. Important question is to what extend the settlement patterns reflect social organization of these communities. Another problem refers to the graves located within the villages. Very rare graves suggest that only some people were buried on the settlement. Who they were, and where are the others members of LBK communities?

### **Different Landscapes, Different Settlement Systems? Neolithic Settlement Patterns of the Funnel Beaker Culture during 3500-2700 BC in Northern Germany**

**Jan Piet Brozio** (Institute of Prehistoric and Protohistoric Archaeology, Christian-Albrechts-University Kiel, Kiel)

The organization of settlement systems in the northern peripheral regions of Northwestern Europe seems to differ from the Neolithic settlement patterns in Central or Southeastern Europe. The settlements of the Funnel Beaker Culture are

characterized by a low number of houses in smaller settlement regions. An analysis of social organizations associated with settlements in two different landscapes has been a main focus of a research program since 2009 in Northern Germany. In order to evaluate functions and economic patterns of the Funnel Beaker settlements, the program compares an inland situation with a coastal region of the Baltic Sea in Northern Germany. Within both landscapes, the wetland conditions enabled the excavation of well-preserved finds such as wooden artefacts, bones and macro remains in several campaigns. In combination with research about the vegetation and agriculture, it is possible to reconstruct different aspects of subsistence and settlement organisations. A comparison of different structures and settlement patterns associated to megalithic tombs indicates that the organisation of landscape components was more important for social affiliation to the Funnel Beaker Culture than to the individual settlement.

### **Economy or Ideology? Traditions of Settlement Locations in the Northern Neolithic**

**Martin Hinz** (Institute for Pre- and Protohistory, Christian-Albrechts-University Kiel, Kiel)

It is often said that at first the neolithic economy entered the mesolithic world of the north as ritual component or habit (Jennbert, Thomas). While not playing the main role in subsistence agriculture may have been practised in small scale for to fulfill religious or prestige needs. Resulting from this the early neolithic economic background for the location of permanent settlements of Funnelbeaker societies were still the same as that of their mesolithic predecessors. In an investigation of the neolithic settlement structure of two districts of southern Schleswig-Holstein (Stormarn and Herzogtum Lauenburg) it became apparent that the preferred location of permanent settlements stayed the same until bronze age, although the economic background and the preferred location of non-permanent activities changed during time. The reason could be comparable economic needs, which would imply a much stronger influence of hunting and gathering than the archaeological record mirrors. Or maybe the location of sites were stronger influenced by an ideology that linked back to the mesolithic traditions, although those locations were not optimal for a neolithic economy. Maybe the mesolithic economy were now part of the neolithic world as ritual component or habit, fulfilling religious or prestige needs in turn?

### **Neolithic Settlement Changes and the Early 3rd millennium BC Hiatus**

**Rune Iversen** (University of Copenhagen, Copenhagen)

This paper explores the heterogeneous and rich settlement material from the South Scandinavian Neolithic. In the Early Neolithic, settlements were dispersed mobile and short-term occupations based on slash and burn agriculture. From the onset of the Middle Neolithic the settlement pattern changed towards larger units of longer duration, agricultural intensification, permanent fields and commons. However, during the early 3rd millennium BC habitation features like pits, culture layers and houses diminished indicating a new settlement organisation and altered subsistence economic strategies. In the Late Neolithic houses once again became part of the settlement pattern and at the onset of the 2nd millennium BC large halls occurred. What does this early 3rd millennium BC 'interruption' of the settlement development reflect? Are we dealing with a deliberate downscaling of traditional Neolithic life in preference of less sedentary and more mobile settlements patterns? Do we face a time of crises and decline after the cease of Funnel Beaker societies? Are we witnessing marked social changes introduced together with Corded Ware impulses? In dealing with these questions this paper views the South Scandinavian development within a larger Northwest European context.

## **POSTER**

### **On the Surface – Understanding the Original Copper Age Surface Level of a Cham Culture Settlement in Steyregg-Windegg, Austria**

**Jakob Maurer** (Department for Prehistoric and Historical Archaeology, University of Vienna, Vienna)

In Austria and adjacent regions information concerning dry land housing structures dating to the late 4th and early 3rd millennia BC is not exactly overwhelming. This is especially true for sites with the kind of extensive surface erosion typically caused by agriculture. However, it is also not easy to understand the layout of sites with a partially preserved former surface horizon, as many of the original architectural structures probably had shallow foundations. This case study deals with one such site, the Cham Culture settlement of Steyregg-Windegg, whose main features are stone foundations most likely belonging to cupola ovens, and shallow (probably unintentionally created) pits that seem rather typical for sites with this degree of preservation. Detailed analyses of the finds distribution, when considered in relation to the stratigraphic evidence, allow us to test the feasibility of possible house reconstructions, as well as allowing us to produce a series of possible scenarios for intra-site settlement dynamics. The state of preservation of the pottery fragments distributed over the old surface level is considered to be of particular importance.





## T01S027 - AEOLIA BETWEEN SPECIAL IDENTITIES AND TRANSMARINE INFLUENCES

**Organizers:** **Antonio La Marca** (Università della Calabria, Arcavacata di Rende), **Yusuf Sezgin** (Celal Bayar University, Manisa)

Session dedicated to: 1) the results of thirty years of excavations at Kyme and Aigai, with special regard to new excavations and to architectural, theatral and wall finds; 2) to coin iconography of Aeolian cities as expression of local identity and foreign cultural and political influences; 3) to ceramic and coins as proofs of commercial Mediterranean Routes in Greek, Roman and Medieval times; 4) to aeolian graves.

### ORAL PRESENTATIONS

#### Cities of Deaths for the City of Living: Aeolis Cyme and His Necropolis

**Antonio La Marca** (University of Calabria – Italian Archaeological Mission in Aeolis Kyme-MAIKE, Arcavacata di Rende)

Several rescue excavations have been carried out during the last 15 years in the area around Cyme simultaneously to the researches carried out by Italian Archaeological Mission in the City. These trenches now, provide an image of the topography in the surroundings of the ancient Capital of Aeolis: rural farms, a factory for processing olive oil, cisterns for water supply of the city and huge necropolis (dating from 8th century BC to Byzantine period) have been discovered. In the graves a big amount of jewels and tiaras indicating the primary role of Cyme's jewellers during Hellenistic period, have been found.

#### The Mountainous City of Aeolis: Aigai

**Yusuf Sezgin** (Celal Bayar University, Manisa)

Herodotus names Aigai among the twelve cities that Aioliens established in the Aiolis region. Although the historians in the antiquity claimed that the Aiolian migrations to the area began in the beginning of the twelfth century BC, the current data obtained from the archaeological excavations indicate a date only as far back as the first half of the seventh century BC for the establishment of Aigai. According to Polybius' narration, Aigai suffered extensive damage during a battle between Prusias the second, the King of Bithynia and Attalos the second (one fifty-six - one fifty-four BC). In fulfillment of the post-war treaty Prusias the second was forced to pay one hundred talents to the cities that he damaged. Following this period, Aigai became an attractive economical and political center probably with the support that it received from the Kingdom of Pergamon and it was adorned with glamorous structures, such as the theater, bouleuterion and the agora. It is evident that Aigai was an economically powerful city throughout the Hellenistic period. It is known that the city had a stronghold in the region in textile weaving and wool production.

#### A Funerary Stele from Aegae (Aeolis)

**Asil Yaman** (Muğla Sıtkı Koçman University, Muğla)

My purpose is to identify, dating and introduce a funerary stele found during the excavations of the Bouleuterion at Aigai, located in the Manisa Museum, with a single depictment running over the length, high-relief figures, and two pilasters, with upper part depicted as an architrave. It depicts two young men lying on a kline and a women sitting on a diphros. In front of the kline is a rectangular table with a meal. On the left, a servant. On the right, a figure with a horse. At the top of the scene is an armour and a chiton. A funerary scene is shown on this particular stele of which its origins can be traced back to the Near-Eastern, Persian, Anatolian reliefs. These stelae were used in the Hellenistic period to emphasize the heroism and social status of the deceased. When we look at his style, we can see figures with clothes with deep randomly arranged folds which give room for shadow play, and their hair and eyes display a baroque and pathetic style. Consequently, it may be compared with stelai which come from Pergamon or North-western Anatolia and may date back to the second half of the second century BC.

#### Kyme. The Residential Area on the South Hill

**Massimo Frasca** (Catania University and MAIKE, Catania)

The ancient city of Kyme is located on two hills by the sea, into the Candarli Gulf. The ancient site is known from the 19th century and was excavated in several times by Czechoslovak and Turkish archaeological team in the 20th century. Since 1982 systematic investigations are managed by an Italian Archaeological Expedition. In 1987 the Specialization School of Archaeology of Catania University started the excavations on the southern hill of Kyme, where a residential area was identified. The discoveries are of great interest for the reconstruction of all the historical phase concerning the long life of the city. The earliest findings date back to the mid-8th century BC and testify the full inclusion of Kyme in the commercial sphere of the central Mediterranean Sea. The excavations also brought to light remains of houses of the different periods: Archaic, Classical, Hellenistic, Roman and Late Roman Period, until the abandonment of the place, in the Byzantine Period.

## Kyme and Its Theatre

**Stefania Mancuso** (University of Calabria and MAIKE, Arcavacata di Rende)

The great diffusion of theaters in Asia Minor, which started in the Hellenistic period and intensified during the Roman era, registers the presence of more than a 100 buildings of theatres, 4 alone of which are present in Eolide. This communication focuses on one of the most significant monuments of the city of Kyme in Eolide (Turkey) outlining the characteristics and peculiarities within the larger panorama of theaters in Asia Minor. Although known since the beginning of the twentieth century, the systematic investigations carried out in recent years are leading to an understanding of theater, through an ever-better defined architectural, typological and chronological with a diachronic analysis of its structure that, like all ancient monuments, the monument is interpreted as dynamic. Besides archaeological analysis, as the theater today is a strong attractor for the usability of the archaeological, in line with the discussion of issues related to archaeological parks construed as open-air museums, it also addresses the question of how the building presenting some hypotheses aimed at perception and understanding of the monument by contemporary visitors within a wider project to improve the city.

## Kyme of Eolis. Archaic Graves Near South Hill

**Fabrizio Sudano** (Soprintendenza Beni Archeologici della Calabria - MAIKE, Reggio Calabria)

Between 2007 and 2008, in the site of Kyme, on the west coast of Anatolia (Fig. 1), during the study entrusted to MAIKE (Missione Archeologica Italiana a Kyme Eolica - Calabria and Catania University), thanks to works financed by the owners of the lands where the excavations were made, some graves were found at the foot of the South Hill of the site, not far from the archaic fortification wall discovered in the 50s by E. Akurgal, in a flat area close to the sea, delimited in the western side by the ancient Kaikos river. In a small space have been unearthed five funeral depositions, four of them incinerated. Almost all the vessels in which were placed the cremated bones of the dead were still perfectly intact and, on three occasions, with the edge covered with stone slabs.

## New Researches on the Cemeteries and Funeral Monuments of Aeolian Kyme in the Archaic Period

**Rossella Pace** (MAIKE-University of Calabria, Arcavacata di Rende), **Stéphane Verger** (MAIKE-Ecole Pratique des Hautes Etudes, Paris)

The excavations carried out by the Italian Archaeological Mission of Aeolian Kyme (MAIKE) allowed to know the evolution of the topography of cemeteries, of the funeral practices and of the burial typologies throughout the Archaic period. The study of metal objects from the funerary contexts in the south-eastern necropolis shows the characteristics of production and trade in the first centuries of the city. The reconsideration of a fragmentary stele with figurative scene and double inscription brings many historical indications on the integration of Kyme in the rich context of the cultural exchanges between the aristocratic circles of Ionia, Aeolis and the Mediterranean in the second half of the sixth century. A large tumulus excavated in 2012, the Kelebek Tepe, provides important evidence about the politic history of the city at the time of the Persian Wars.

## Pottery Circulation in Aeolis Kyme. Some Remarks on Geometric and Early Archaic Period

**Carmelo Colelli** (MAIKE-University of Calabria, Arcavacata di Rende)

The origin of Kyme is still wrapped in a kind of mist. Though the ancient writers mention a foundation in the second millennium BC, for Kyme (and for Aeolis) we almost completely miss archaeological evidences earlier than 8th century BC. Literary sources and archaeological evidence provide us random information about the earlier phases of the centre and his dock. It looks like a few pieces of a mosaic describing a blurry picture: we still miss the meaning of the puzzle. Something seems to change in the second half of the 8th century BC when we record an explosion of vitality documented by graves, stratigraphic data and, especially, pottery. Now the pieces of the mosaic open some windows for us from where we can spy economy, society and trades involving Kyme and the Aeolis. In this speech I will offer a general overview of Kyme (and Aeolis) between late Geometric and early Archaic period (8th - 7th century BC) in light of published materials and of new data coming from recent excavations. The focus will be on pottery productions and circulation in order to provide further information about chronology, technology, economy and trades, trying to have a look at the whole Aeolis region in a Mediterranean perspective.

## The Pottery Circulation in Aiolian Kyme. Some Remarks on Archaic and Classical Period

**Lucia Scatozza Hoericht** (University Federico II of Naples and MAIKE, Naples)

The circulation of Aiolian painted pottery in the Orientalizing period is confined to the regional area and rarely has been found outside of Aiolian land. In Aiolis one prolific and important pottery center prevailed in the production and even more in the export of Archaic wares, situated most likely at Kyme, comprising different styles and techniques of painted pottery (such as Wild Goat, including the so called London Dinos Group") as well as Grey and banded wares. Its ceramic products are widespread in a large distribution area, from the Black Sea to the western Mediterranean coasts. Painted wares of this coherent Group have been found recently in Phlegraean Kyme, by Naples, along a trade route that reached Etruria, southern Gaul and Iberian coasts. Amphorae from Aeolis are attested from the first half of VI.th to the second quarter of the V.th century BC in many centers of Southern Italy and Sicily.



## Pottery Circulation in Aeolis Kyme. An Overview on Hellenistic and Roman Period

**Vincenzo Di Giovanni** (University of Naples “Federico II”, Naples), **Giancarlo Di Martino** (Dipartimento di Studi Umanistici, University of Naples “Federico II”, Naples), **Silvio La Paglia** (Dipartimento di Studi Umanistici, University of Naples “Federico II”, Naples), **Maria Elena Landi** (Dipartimento di Studi Umanistici, University of Naples “Federico II”, Naples)

The ancient city of Aeolis Kyme (Western Asia Minor) is a site of long duration. Its activity is attested by the historical tradition from an early archaic age, with varying phases until the first Byzantine period. The pottery found in the layers of the city is one of the first evidences of this long history. Hellenistic wares coming from the area of Kyme show the importance of the city harbour as well as its role in the trades of the Mediterranean area. The study of more attested classes between the end of the fourth and the first half of the first century B.C., in fact, proves that the harbour of Kyme played an important role in relationships between Pergamon area before and Ephesus later with all the Mediterranean cities and Levantine environment. Concerning Roman and early Byzantine periods, pottery classes, that we know best and give specific informations about life status and economy of the city and its harbor are: transport amphorae, some productions of common ware and fine table pottery. Aims of this study are reading and interpretation of these data, in an overall view and a long-term perspective, to start drawing a history, perhaps alternative, of the city.

## From Macedonians to Venetians: Coin Circulation at Kyme among Local Exchanges, Civic Needs and Foreign Commerce

**Benedetto Carroccio** (University of Calabria and MAIKE, Arcavacata di Rende)

In 30 years of excavations of the Italian Archaeological Mission at Aeolis Kyme were uncovered circa 1,000 coins from various sectors and strata of the city, from 5th cent. BC to 14th cent. AD. Peaks of relevant coin presences allow us a good comprehension of the main periods of monetarization and/or prosperity of Kyme, in the Hellenistic, Middle Imperial and Late Roman ages. Kyme was also a very productive mint in the Hellenistic age for bronze coins used for local exchanges with magistrate or euergetai names. The practice of countermarking was a response to particular fiscal needs. The uncovered coins are also witnesses of commercial exchanges and military or political influences or presences from foreign states and regions, as near Hellenistic cities, the Kingdom of Macedonia (Alexander the Great and Philip V), the Britannic Empire, Roman Oriental and Byzantine mints, or the Crusaders and European (Venice, XIV cent. AD) mints.

## Roman Provincial Coinage in Kyme: Circulation and Iconography

**Mariangela Puglisi** (Messina University and MAIKE, Messina)

Analyzing the evidence of Roman Provincial coins, we will try to draw a picture (a framework?) of coin circulation in Kyme during the Roman period with particular attention to any external presences to recover the relationships among different areas of the Province. We will consider also the iconographies which characterize the local coin issues in that period.



## T01S028 - BORDER CROSSINGS: RETHINKING CULTURAL AND MATERIAL DIFFUSION

**Organizers: Susanne Hakenbeck** (University of Cambridge, Cambridge), **Steven Matthews** (University of Groningen, Groningen)

The movement of people is endemic in historical narratives, from adventurers in classical sources to entire ethnic groups in biblical myths, and remains a contemporary post-colonial concern. Globalised outsourced production and worldwide transportation of goods are as familiar to us today as personal narratives concerning migration for economic or political reasons. These processes can have a significant impact on the material and ideological traditions of those involved. The same underlying processes have often been at the heart of traditional archaeological discourse. Approaches to this theme, however, have become polarised between autochthonous development and diffusionism. Despite deconstructions of the maxim that migration was the primary mechanism that drove cultural and technological change, diffusionism has remained a cornerstone of interpretation, re-imagined in concepts like trade and exchange. However, the concrete way in which material culture may operate as a vehicle for transporting ideas is often underexplored, despite renewed theoretical and scientific interest in exploring connections and networks across cultural boundaries. We aim to bring together new perspectives that address the mechanisms that drove diffusion, evidenced in boundary crossings, acculturation, material adaptation and cultural rejection. We invite papers that address these issues at all archaeological scales, from inter-regional movement to intra-regional, small-scale interaction.

## ORAL PRESENTATIONS

### Dissecting Diffusion: Technological Dissemination and Social Networks

**Charlotte Damm** (UiT- Arctic University of Norway, Tromsø)

This presentation will argue that analyses of diffusion may benefit from a dissection of population groups into separate practices and technologies as evidenced in specific artifact or site types. All social and cultural groups are heterogeneous, not only with regard to gender and age, but also in relation to tasks performed and activities and networks engaged in. By studying the distribution and spread of material culture linked to particular tasks (pottery manufacture, fishing, rock art a.o.), and considering the social, cultural or economic networks or communities of practice responsible for these specific practices, we arrive at a much more complex and detailed resolution of the interaction within and across social and cultural boundaries. The presentation builds on insights gained through a recent interdisciplinary project Early Networking in Northern Fennoscandia, and is inspired by recent studies employing practice theory, ANT, Cultural Transmission Theory and chaîne opératoire analysis. The approach is exemplified with cases from the hunter-gatherer groups in northern Fennoscandia ca 5000-2500 BC.

### Boat 1550 BC: Exploring a Bronze Age Maritort in NW Europe

**Peter Clark** (Canterbury Archaeological Trust, Canterbury), **Anne Lehoerff** (University of Lille 3, Villeneuve-d'Ascq)

Extensive archaeological fieldwork and research on either side of the English Channel over the last twenty years or so has brought to light exciting new evidence of the close cultural links between Bronze Age communities on either side of the sea. Close similarities in material culture, settlement types and funerary rites seem to suggest a maritime 'culture' focussed on the Transmanche coastal zones during the 2nd Millennium BC. In 2012 a major international project 'BOAT 1550 BC' was launched to examine the evidence for this putative 'maritort'. The project was undertaken by a consortium of seven institutions from France, Belgium and the UK, financially supported by the European Union through their Interreg IV A '2 Mers Seas Zeeën' programme. The project comes to an end in June 2014, and this paper will review and assess the results of the project, examining the evidence for cross-channel connections which was brought together in a major exhibition, the construction and sailing of a replica of the Dover Bronze Age boat and the far-reaching programme of education and outreach. Particular attention will be given to the theoretical models of explanation underpinning these archaeological phenomena.

### Contact, Change and Mobility Revealed through the Craft of Potters: Identifying Diffusion and Migration in the Baltic Sea Region during the Neolithic

**Åsa M. Larsson** (Societas Archaeologica Upsaliensis, Uppsala), **Elisabeth Holmqvist-Saukkonen** (University of Helsinki, Helsinki)

The definitions and borders of archaeological cultures are based on the occurrence of more or less well defined assemblages of material culture – in the Neolithic often focusing on types of pottery. Still, there is no consensus on which traits of pottery are meaningful to delineate a cultural/social border, or even any clear evidence that the general focus on style is actually valid. We need better methods and theories regarding the creation of the material culture we purport to be studying in order to differentiate between diffusion and migration. We must examine how changes in style and shape actually happen in terms of real events in a pre-capitalist setting. By analyzing pottery as the result of culturally and socially situated learning processes, which become embodied to varying degrees through the operational sequence, culture change in Neolithic Sweden and Finland is shown to develop through long term interregional contacts. Both gradual and abrupt changes can be identified during the period, revealing that sometimes diffusion and sometimes actual mobility of potters were part of the process. SEM-EDS analysis on clay matrix and grog temper reveal further complex relationships on both inter- and intraregional levels.

### Entangled Worlds: Materiality, Diffusion, and Hybrid Identities in Western Iberia

**Javier Rodríguez Corral** (Universidad de Santiago de Compostela, Santiago de Compostela / University of Oxford, Oxford)

The aim of this paper is to gain insights into the mechanisms by which new socio-materialities were co-created in western Iberia as a result of encounters between people of Atlantic and Mediterranean cultural and technological backgrounds during the LBA (1200-700 BC). Particular emphasis is placed on the landscapes where socio-cultural encounters took place and where material objects were hybridized, integrated, or recreated. The material evidence which is analysed comprises specific objects—such as goldwork, bronze axes, and statue-menhirs or stelae—which allow us to shed light on the ways in which the social identity of Atlantic people shifted or was altered through these encounters, adopting and adapting new practices and artefacts within a shared cultural milieu.

## **Innovation, Migration and Diffusion: Perspectives from the Palaeolithic**

**Laura Basell** (Queen's University Belfast, Belfast), **William Davies** (University of Southampton, Southampton)

This paper considers cultural and technological change in relation to innovation, migration and diffusion, during the emergence and spread of *Homo sapiens*. Migration, diffusion, acculturation, networks and cultural boundaries are key concerns of Palaeolithic archaeologists, and are strongly related to the question of innovation, or the emergence of new technology/artefacts in the archaeological record. The concept of migration is embedded in Palaeolithic research (e.g. "Out of Africa") and forms the basis of many key debates. Conversely diffusionism is less prevalent with the obvious exception of the debate over *Homo sapiens*/Neanderthal acculturation. Additionally, discussion is often muddled by concerns over the "cognitive capabilities" or the "modern" versus "non-modern" status of different species. Mechanisms that drove innovation, migration and diffusion during this period are rarely made explicit though all concepts are frequently employed. To define how the debate should be developed, this paper will explore: • The use of the Palaeolithic archaeological record to support population movement and diffusionist interpretations. Especially whether they are related to particular spatial or temporal interpretive scales. • Whether the mechanisms for the transfer and transformation of ideas and objects are made explicit. • The role of serendipity and proximity in innovation, knowledge transfer, (including knowledge loss) and re-invention.

## **Swordbearers, Inside and Out: Internal and External Diffusion in the Atlantic Bronze Age**

**Steven Matthews** (Groningen Institute of Archaeology, University of Groningen, Groningen)

Diffusion is no longer discussed in terms of folk movements but of technological transmission. For example, the importation of swords from the Urnfield to Atlantic complex, representative of external diffusion, and the development of regional variations of the same sword types within the Atlantic complex, representative of internal diffusion, would appear to be different phenomenon. One represents interaction across the borders of differing cultural complexes, the other interaction within the same complex. With respect to the spread of swords, this model assumed that the two complexes were qualitatively equivalent and exclusive craft traditions existed within each. However, recent research has shown that the Atlantic Bronze Age was not an homogenous cultural complex but primarily a metalworking sphere, concerned with weapons and their accouterments. As the ownership of these was a minority occupation, any diffusion was a social rather than cultural affair. Consequently the same processes may have underpinned both in the spread of sword technologies. This presentation, focusing on one aspect of the material culture of this period, will look at the possibilities for remodeling later Bronze Age diffusion by discussing the utility of traditional approaches concerning external/internal diffusion and the evidence for craft traditions as border crossings.

## **Neolithic Human Representation as a Marker of North Africa-Mediterranean Connections**

**Marina Gallinaro** (University of Sassari, Sassari)

The Mediterranean basin has always been an important crossroads of people, materials and ideas that built up an immaterial heritage of outstanding value. The artistic evidences are an extraordinary effect of this immaterial heritage, reflecting the deepest ideological stance of a community. Aim of this work is to investigate how the human representation -whether expressed in the form of rock art, pottery decoration or figurines- can assume a key role as an index of connections between the different areas facing the Mediterranean basin during the Neolithic period. The human representation presupposes, in fact, a conceptualization, probably linked with sacred beliefs, setting the anthropomorphic figure in the realm of things and beings that are object of representation. The role of North Africa has generally been neglected, while a crucial role of the Near East has always been remarked. The human representations known for the Egyptian Neolithic (since Badari culture ca. 4400-3900 BCE) and the rock art of central Sahara (since ca. IV mill. BCE) seem, instead, to highlight the presence in North Africa of a proper ideological system, whose connections with other Mediterranean regions (e.g. Sardinian Late Neolithic figurines) pose relevant questions about human mobility and/or ideological influx.

## **More on the Neolithic Diffusion: Impressed Pottery from Yumuktepe (Turkey) and Southern Apulia**

**Isabella Caneva** (Università del Salento, Lecce), **Elettra Ingravallo** (Università del Salento, Lecce)

The introduction of the concept of "Neolithic Revolution" stimulated a great number of theories on the dynamics of the westward Neolithic dispersal, looking at the process either as a demic expansion or as the diffusion of products and techniques. These opposed perspective produced either a generalistic pan-Mediterranean view of the process, or local studies aimed at identifying indigenous developments of agricultural practices, without a comparative analysis of the components of the neolithic package. In spite of several new excavations, therefore, the material evidence for these models remain unsatisfactory. A crucial role in the process is played by Anatolia, particularly by the southern and western Anatolian coasts, from where maritime expansion routes could have been established toward the Aegean and the western Mediterranean sea. As to southern Italy, Ammermann and Cavalli Sforza (1973), Forenbaier and Miracle (2006) suggest two waves of dispersal of impressed pottery in the Adriatic: the first with pioneer groups coming to explore the coastal areas, the second with the Neolithic economy being definitely established. Northern Apulia would have been among the areas of earliest neolithisation in Italy. This paper tries to compare in more detail the new data from Apulia and south Anatolia.

## Materialism and the Immaterial

**Francesco Iacono** (UCL, University of Salento, Lecce)

Diffusion, interaction or the displacement over space of identical or analogous cultural elements has always represented both one of the chief interests of archaeological practice and one of the most blatantly unresolved nodes of theory. What is diffusion? How does it come about? What are the features beyond its manifestation in the archaeological record? In order to answer to these questions a number of different solutions have been produced over time, in agreement with the constant shift of general paradigms occurring in archaeology. From meta-historical narratives of migrations, to gravity models inspired by geography and other more abstract metaphors of connectivity. My claim is that underlying all this debate is actually a basic tension between what archaeology can (the material traces) and cannot (the immaterial domain, the living flesh of societies) cope with. In this paper I will try to explore in depth this complex relationship, advancing yet another theoretical model that tries to grapple with the issue at stake. Building up from non-orthodox Marxism, this model will try to maintain the material as a starting point, reconstructing the immaterial underpinnings of diffusion, and exploring how the model might work in a number of Mediterranean Bronze Age case studies.

## Gene Flow and the Formation of Cultural Identities in Prepalatial Central and Eastern Crete

**Efthymia Nikita** (The American School of Classical Studies at Athens, Athens), **Sevasti Triantaphyllou** (Aristotle University of Thessaloniki, Thessaloniki), **Yiannis Papadatos** (National and Kapodestrian University, Athens)

Recent studies have highlighted the possibility that diverse populations occupied Crete simultaneously in the Prepalatial period (c. 3rd millennium B.C.) based on the regional variation of the material record. However, the genetic relationship among Cretan populations and its potential impact to the observed cultural patterns has received limited attention. The current communication examines the genetic relationship between Prepalatial populations from Petras, Livari and Moni Odigitria by means of dental nonmetric traits in order to explore mate exchange networks and population relocations in Crete. The results of this interdisciplinary study reveal interesting patterns of genetic distance and proximity at an inter- and intra-cemetery level and can be associated with specific cultural patterns. It appears that there are skeletal assemblages in which cultural similarities may be attributed to gene flow, whereas in other cases these similarities are the outcome of exchange of products and ideas. Moreover, aspects of the material culture that appear to be mostly propagated by means of demic diffusion (gene flow) and others that are unassociated to the genetic distance among groups are identified. As such, the results of this study have important implications for the understanding of human mobility and the formation of cultural identities in Prepalatial Crete.

## How to Explain Cultural Diffusion without Breaking Hearts: Approaching Mycenaean Koiné in the 21st century

**Hüseyin Çınar Öztürk** (University of Cincinnati Department of Classics, Cincinnati)

The appearance of the seemingly uniform Mycenaean material culture in the periphery of the Mycenaean world has intrigued students of the LBA Aegean for more than one century. The question of the spread of the Mycenaean koiné has been approached from many different theoretical angles, including, but not limited to, culture-historical diffusionism, acculturation models, “port of trade” models, conspicuous consumption, world systems theory, and network theory. Consequently, interpretations regarding the meaning of Mycenaean material remains differ widely. For instance, in accordance with their theoretical inclinations, some scholars have considered a small assemblage of Mycenaean style artifacts sound evidence for a “Mycenaean colony”; while others have interpreted much more abundant material evidence as a result of the emulation of the mainland culture by locals. Can we ever go beyond the scholarly biases, and understand the true nature of the spread of the Mycenaean material culture? “No!” a relativist will self-confidently assert. Still undeterred, I will investigate the processes by which various population groups became a part of the Mycenaean cultural koiné; and, relying on my dissertation research, will try to explain why and how a certain theoretical model is more likely to have applied to a particular site or sub-region.

## Greece and Italy before History: Strategies for Socially Embedded Contacts

**Giulia Saltini Semerari** (VU University Amsterdam, Amsterdam)

Contacts between Italy and Greece deeply affected the history of the central Mediterranean. In this paper, I will focus on two different periods that experienced a high degree of connectivity, namely the Late Bronze Age and the Orientalising period. At first glance, both periods appear to involve similar phenomena, such as the settling of small groups of Mycenaeans/Greeks in southern Italy, the exchange of goods, the local production of Greek-style artefacts, and selective adoption of Greek technology and ritual elements. However, a more detailed analysis reveals deep differences in the way these contacts were embedded in the social life of local southern Italian communities. These were crucial in shaping the final outcome of these contacts, which ceased at the end of the Bronze Age, but led to the establishment of the Greek

colonies in the Orientalising period. Contrasting these two processes and focussing on how social agents made use of external connections within their local context, this paper shows that two different models can be proposed: one of opportunistic adoption of an élite material 'language' for the Late Bronze Age, and another of progressive entanglement for the Orientalising period.

### **The Adoption of Greek Ritual in Southern Italy. Clay Figurines as a Key to Interpret Greek-Italic Interaction in Protohistory**

**Ilaria Tirloni** (Université de Rennes 2, Rennes)

In southern Italy, the interval running from the Late Bronze Age to the Orientalising period is one of profound socioeconomic, cultural and political changes. Among the many factors that determined the trajectory of local Italic communities towards increasing complexity, external contacts were central. In particular, exchanges with Greece at the end of the Bronze Age and at the end of the Early Iron Age-Orientalising period became an integral part of the material culture of indigenous communities. However, it is a matter of debate how profoundly indigenous societies were influenced by such contacts. In this paper, I shall focus on archaeological evidence of 'borrowed' ritual elements in order to shed light on both the identity of the worshippers and the impact of Late Bronze/Early Iron Age connections with Greece. In particular, through the study of diachronic depositional patterns of clay figurines, I will show that the Mycenaean presence in southern Italy in the Bronze Age was substantially different both in kind and impact from that of the Early Iron Age.

### **There and Back Again: The Adoption of Court-yard Sites from the Arctic to the Borders of the Roman Empire**

**Niall Oma Armstrong** (Cultural Heritage Management, Rogaland County Council, Stavanger)

Around the year AD 100 a new architectural phenomenon appeared in Western Norway, and was in use for the next four to eight centuries: the so-called Court-yard sites. These have traditionally been associated with power and prestige, but also liminality. On the basis of form, dimensions, construction and opportunity, I have previously argued that these sites were inspired by the example of the amphitheatres of the Roman limes. Given the journey undertaken by this architectural form, I wish to discuss the applicability of the term diffusion to describe such phenomena. I argue that diffusionism as a term is laden with two preconceptions; it is both scientific, in being uncritically borrowed from natural sciences, and too closely associated with the mono-source materialism of culture-historical archaeology. By focusing instead upon adoption, agents and societies are brought to the forefront of the discussion. This bottom-up approach lets the choices of those in the periphery take centre stage. The case-study also provides opportunity to discuss the challenges of adopting institutions between societies of vastly different social complexity. Our understanding of both donor and recipient society is broadened by the study of their mutual interaction.

### **On the Acculturation and/or Transmutation of Symbols; or how We Got from the Power Crown to the Paper Crown**

**Christina Tsouparopoulou** (University of Heidelberg, Heidelberg)

This paper will present three case-studies in order to examine the acculturation and/or transmutation of symbols and motifs. The first case-study will treat as terminus ante quem the motif on a gold ring found in the cemetery in Pydna dated to the 3rd century BC and trace its origins in Mesopotamia of the 3rd/2nd millennium BC. The second case study will examine the acculturation of a symbol appearing on coins of the Early Islamic period and will trace its origins only a few years earlier to the Sasanians. The third case study traces the origins of the paper crown worn proudly nowadays by birthday boys and girls in the West, its use as an emoticon, avatar etc in the World Wide Web, while tracing its origins back to the crown as a symbol of power in the Medieval period. In all three cases, the symbol was assimilated to a different culture and used by its carriers in a different way than previously conceived, with a properly accumulated function to the sociocultural traits of the culture that adopted it.

### **On the Frontier: Shared Worldviews in Early Medieval Europe**

**Susanne Hakenbeck** (University of Cambridge, Cambridge)

The end of the Roman Empire brought great social upheavals to central and western Europe. Historical sources inform us that different barbarian tribes waged wars, migrated and eventually set up new kingdoms. Archaeological investigation has mostly been supportive of this model and has attempted to identify the different tribes by their associated grave goods, in particular brooches and weapons. However, this focus on the apparent ethnic differences within material culture has ignored the startling phenomenon that much of the barbarian burial practice was remarkably similar. From the Carpathian basin to northern France, from England to northern Italy, grave good inventories were variations on a common theme. This paper will investigate the mechanisms involved in transmitting such a shared repertoire on a large-scale. It will look into the role of metalwork production, trade and mobility to determine how ideas about appropriate burial were communicated.



It also asks why these ideas were so widely shared. More broadly, this paper is intended as a contribution to how we can study large scale phenomena by explicitly focusing on the individual actors that created them and without reverting to overly deterministic models of society.

### **“Boundary Objects”: The Role of Art in the British Iron Age – Roman Transition**

**Jody Joy** (Museum of Archaeology and Anthropology, University of Cambridge, Cambridge)

Designs on objects recognisable as Iron Age in character persist in Roman Britain after the Roman Conquest (AD 43). This art has traditionally been viewed as an ‘historical’ fossil or a form of ‘native resistance to Rome’ but it is actually formed using techniques and technologies which draw upon the Roman as well as the pre-Roman worlds. Identity is often performed between boundaries. Star and Griesemer identify a category of objects they call ‘boundary objects’, which are ‘...both adaptable to different viewpoints and robust enough to maintain identity across them’ (Star and Griesemer 1989, 387). I argue that this art was a kind of boundary object which was at the centre of many of the social transformations that took place in early Roman Britain and on its frontiers. By manipulating art and technology in various ways, difficult transactions of ideas and renegotiations of identity could be accomplished. This was not a static process; rather it was fluid and changing. By subtly making something in a different way, or presenting an object in a different context, or depositing various collections of artefacts with different combinations of pre-Roman and Roman, meanings could be radically altered.

### **Colonisation of a Border Zone - Social Organisation, Identity and Cultural Space**

**Mats Anglert** (Swedish National Heritage Board, Stockholm)

Woodlands in the border zone between medieval Denmark and Sweden were colonised in the 11th and 13th century. During this period the society expanded and the population increased in this area as in many other parts of Europe. In the beginning the colonisation was agricultural, but soon, and especially after the crisis in the 14th century, a diversified economy developed with a focus on iron production. A special social organisation and identity could be identified in the 16th century from a special settlement organisation and housing culture. Production, distribution and social organisation needed highly developed networks. Related to this, small towns were created along the coast, but the urbanity was as much located to the production landscape as to the towns. To understand this landscape it must be put in contexts including the traditional agricultural landscapes where from the people come. The differences will be discussed in terms of communities of assent and communities of descent, contemporality and conspatiality, as well as opened and closed spaces.

### **The Importance of the Sea in Daily Life in the Late Antiquity Salona**

**Marija Buzov** (Institute of Archaeology, Zagreb), **Vesna Lalošević** (Institute of Archaeology, Zagreb)

Salona, center of Roman province of Dalmatia because of his position was an important port in which the number of ships arriving from East and West RC. Many are located in Salons confirming the connection of the city with the eastern centers especially with Alexandria and Syria, and at the time tetrarchy with Nicomedia. And in literary sources, the city has been described as extremely dependent on the sea. They provide information about ships, routes maritime routes, journeys of individuals, officials and rulers, trade, crafts and hospitality in the Salons. Picture of salons is very vivid and moving the wealth and architectural findings are well documented.

### **Distributed Objects, Spreading Ideas and the Question of Identity Formation in the Early Anglo-Saxon Period - Exploring the Potential of Network Analysis**

**Kathrin Felder** (University of Cambridge, Cambridge)

Over the past decades, traditional discourses about the role of large-scale migration in the emergence of Anglo-Saxon England have been replaced by new, theoretically informed research agendas. Today, large numbers of local-scale studies draw a nuanced picture of processes of acculturation and regional variation. Within our current theoretical frameworks, sharing or deliberately not sharing material traditions is understood as a central practice which allowed people in the early Anglo-Saxon period to transmit ideas about affiliation, reconfigure power relations and thus establish and maintain the social ties which lie at the heart of cultural and political identity. However, we have yet to resolve the problem of archaeologically tracing the transmission of ideas about belonging and distinctness, affiliation and identity, as a social process. This paper approaches ideational transmission processes across the early Anglo-Saxon landscape. It conceptualises material-cultural connections between burial sites as the archaeologically visible channels through which ideas were transmitted. Network analysis of cemetery data is used as a novel method of visualising regional interconnectedness. This study thus explores the potential of network analysis for investigating regional identity formation in the early Anglo-Saxon period, and for enhancing our understanding of the transmission of ideas through distributed material culture.

## Things Onboard. Artefacts from Shipwrecks and Cultural Transmission in the Baltic Area in the Late 18th century

**Riikka Alvik** (The National Board of Antiquities Finland, Helsinki), **Mia Lempiäinen** (The University of Turku, Turku)

In the 18th century thousands of merchant ships sailed thru the Danish straits and stopped at the toll station at Elsevier to register their cargo. The Sound toll records tell stories of goods that the ships transported, but also of the material culture, the trends and habits that spread around the Baltic Sea in the Age of Enlightenment. One of these ships was Dutch *Vrouw Maria* on her way from Amsterdam to St. Petersburg, Russia. She lost her course and sank to the brackish waters of the Gulf of Finland. Archives tell about the ship, her cargo and the accident and give a lot of information. Is this enough to tell a complete story? What about archaeological record concerning the shipwreck? Do the archaeological data and the interpretation of it differ from written sources? The research of the shipwreck of *Vrouw Maria* has given new information of this ship and the shipwreck, but also a broader perspective of the patterns of trade, merchants and their clients and the new habits and innovations of the 18th century.

## Integration of Chinese Porcelain in a Danish 18th century Consumer Society

**Rikke Søndergaard Kristensen** (Museum of Copenhagen, Copenhagen)

Today porcelain made in China gives Europeans access to cheaper goods for everyday consumption. This large scale integration of Chinese porcelain in European consumption began in the 17-18th centuries when global trading networks were established in order to fulfill the demands for non-European consumer goods. When Danish Asiatic Company was established in Copenhagen in 1732 Copenhageners were given easy access to Asiatic goods. On a materialistic basis the Copenhageners could now in their daily lives express familiarity with Asiatic culture. New investigations of a large 18th century refuse dump excavated in central Copenhagen give insight into the character and use of this specific product made in China on Danish demand. The archaeological finds indicate that the porcelain in its character was transformed to fit in with the Copenhageners general needs and in this sense it became a kind of Danish-Chinese “merger-product”. The finds indicate that the Chinese porcelain primarily consumed in Copenhagen was of the cheapest kind made to meet a socially broad demand. In addition trade documents give information of the character of the interaction between Danish and Chinese merchants in the creation of this semi-European product.

## POSTER

### The Untold Story of an Odd Potsherd. East Mediterranean Ceramic Pattern Recently Attested in Pre-Roman Dacia

**Dragoș Măndescu** (Argeș County Museum, Pitești)

The discovery of an uncommon potsherd in a 1st c. BC layer during the 2002 campaign of archaeological excavations in the late Iron Age Dacian settlement from Cetățeni (2nd c. BC - 1st c. AD) provides new insights on the strong influence of some Eastern Mediterranean models of wine consumption upon the pre-Roman Dacian world. It is about a small potsherd of about 25 square cm belonging to a vessel of fine ceramic category, with red paint on both surfaces. To the inner surface is attached a ceramic perforate membrane - a fine strainer. Apparently, it is a local ware, unique so far in pre-Roman Dacia, which imitates the so-called filter jugs (Rotroff 1997, 1183-1193) spread in the Hellenistic period in the Eastern Mediterranean. The occurrence of this kind of vessel at Cetățeni is not accidental at all: this Dacian settlement was an important center of Rhodian wine trade in pre-Roman Dacia. Thus, the Dacian aristocracy took over not only the wine of Rhodes but also some specific accessories as well as, probably, the Hellenistic manner of wine consumption.



### T01S029 - WAVES OF CHANGE FROM THE MEDITERRANEAN TO THE NORTH SEA (VTH-XTH CENT.)

**Organizers: Laurent Verslype** (University of Louvain-la-Neuve, Louvain-la-Neuve), **John Bintliff** (University of Leiden, Leiden)

Regions do not conform to static entities, but rather change through time, in a dialectic relationship with both wider and local political, cultural, socio-economical, demographic and environmental contexts. Our session wish to address how human resilience, societal vulnerability and sustainability have changed through time in several european regional frameworks, resulting in long term waves of complexity and decline. In the framework of the MERC and linked to our CORES project (<http://iap-cores.be/>), we intend to establish and compare four-late antique and early medieval regional trajectories of change and development in Pisidia in SW Turkey, Boeotia in Central Greece, Picenum in Central Adriatic Italy and NW Gaul. Crossing the borders and the seas from Turkey to the Channel, many connections are also to be observed, for instance through political networks and commercial exchanges, innovative technologies, lack or providing of raw materials. We will therefore add specific study cases from both sides of the North Sea and



from the Mediterranean, in order to understand the specific, yet variable patterns and mechanisms of regional change, as well as enhance comparative inter-regional analysis of archaeological, historical, geoarchaeological, bioarchaeological and conceptual aspects of waves of change between the Late Antiquity and the Xth cent.

## ORAL PRESENTATIONS

### **Complex Adaptive Systems as a Heuristic Framework for Approaching the Productive Landscape of Byzantine Dark Age Sagalassos**

**Jeroen Poblome** (University of Leuven, Leuven)

Complex adaptive systems is fairly new as a concept to archaeology and the discipline of archaeology is fairly new to complex adaptive systems. This paper proposes to consider whether aspects of complex systems theory, representing a conglomerate of converging theories from ecology and social sciences, might have applicability in archaeology, and more specifically in modelling regional productive landscapes as dynamic socio-ecologic systems. The paper suggests that adaptive cycles, a crucial notion in complex adaptive systems, can work as heuristic tools to describe socio-economic complexity, with archaeological phenomena as proxies for the potential, connectedness and resilience of a given society, in this case Byzantine Dark Age Sagalassos and its territory. Perhaps things were a little less dark than conventionally expected...

### **Changes in the Settlement Structure from the Late Antique to the Early Medieval Period in the Territory of the Present-Day Slovenia**

**Špela Karo** (Zavod za varstvo kulturne dediščine Slovenije, Ljubljana), **Timotej Knific** (Narodni muzej Slovenije, Ljubljana)

The territory of the present-day Slovenia has gone through significant changes between the Late Antiquity and the 10th century, which reflect in the settlement structure and cemeteries as well as in the material culture, discovered in different archaeological contexts. In the turbulent Late Roman period, the centre of the settlement was moved from the lowlands to the elevated and well-protected places. Several temporary or permanent dwellings have been built on the hilltops, where the remains of residential and storage buildings, churches, walls and numerous small finds have been preserved. When the political situation in the Eastern Alps changed in the 6th century, these settlements were mostly abandoned, while the settlements with simple sunken houses spread in the lowlands. From the 8th to the beginning of the 10th century re-settling (or re-visiting) of the several hilltop settlements is evident. Although the objects from this period are quite numerous, the architectural remains and the continuity of their inhabitation are still not very clear. The archaeological material from these settlements, consisting of pieces of weapons, warrior and horse equipment is relatively rich comparing to more modest objects from the cemeteries of the period between the 8th and the beginning of the 11th century.

### **A Tale of Two Valleys: Comparative Regional Research in the “Longue Durée” between the Meuse (Belgium) and Potenza (Italy) Valleys**

**Francesca Carboni** (Universiteit Gent, Gent), **Amélie Vallée** (CRAN Université catholique de Louvain, Louvain-la-Neuve), **Frank Vermeulen** (Universiteit Gent, Gent), **Laurent Verslype** (CRAN Université catholique de Louvain, Louvain-la-Neuve)

This paper presents an original, comparative look on change through time of two valleys where recent archaeological and historical studies have unravelled the settlement dynamics between the Roman and Medieval periods. The chosen valleys respectively situated in North-Western Gaul and Central-Adriatic Italy (Picenum) will be analysed within the same methodological framework, with a particular emphasis on the role of central places. These urban and temporarily de-urbanised centres will be confronted with a focus on development, continuity, reoccupation and collapse. In particular the role of political and ecclesiastical authorities in the destiny of these places will be screened, as well as the importance of environmental and cultural landscape features (such as roads, bridges, river networks, sanctuaries ...). The longue durée perspective and the specific regional approach of both case studies allows a wider look on waves of change between Late Antiquity and the Xth century in parts of western Europe, confronting Mediterranean with Northwest European contexts.

### **Changes in Glass Production at the Fall of Roman Empire: The Eastern Mediterranean Versus Northwestern Europe**

**Line Van Wersch** (CRAN Université catholique de Louvain-la-Neuve, Louvain-la-Neuve), **Patrick Degryse** (CAS University of Leuven, Leuven)

When economical structures change, craftsmen have to adapt to new situations, and find solutions to e.g. a lack of supplies or a disappearing market. The case of glass production in the Roman Empire is particularly interesting. During the late Roman period, glass was made from a mixture of sand and natron, available in the eastern Mediterranean region.

This primary glass was exported and shaped in secondary workshops. For the craftsmen, the trade in raw materials (raw glass) was guaranteed by commercial connections across the Roman Empire. Then, a wave of change touched this craft both in the North and in the South. A comparison between the production history of Merovingian glass from the Mosan valley and Byzantine glass from Sagalassos illustrates this situation. In Sagalassos, glass was imported as raw chunks or cullet and locally shaped in the late Roman to early Byzantine period. In the North, at the beginning of the Merovingian period, import of material was continuous until the middle of the VIth century. Then, glass was certainly recycled before the introduction of new recipes based on wood ash. Across the past territory of Roman Empire, material for glass were different using the available resources in the region but everywhere solutions were found to produce it.

### The End of the Monetary Economy in Northern Gaul: The Examples of Tongeren & Tournai

**Johan van Heesch** (Royal Library of Belgium & University of Leuven, Brussels), **Erika Weinkauff** (CRAN Université catholique de Louvain, Louvain-la-Neuve)

Roman society of the 4th century AD was fairly monetized. All this changed in the 5th century AD. In Europe north of the Alps, the use of bronze coins (small change) almost disappeared during that century and it is as good as absent till the 14th century AD. The speed at which this evolution took place and the changes it provoked are not well understood. New excavations in the Belgian towns of Tongeren and Tournai, both continuing into the Early Middle Ages, provided fresh evidence on coin circulation in the 5th and the 6th centuries AD.



### T01S030 - CENTRAL MEETS MARGINAL? THE MEANING OF URBAN AND RURAL IN EARLY MEDIEVAL EUROPE

**Organizers:** **Barbora Wouters** (Vrije Universiteit Brussel, Brussel), **Patrycja Kupiec** (University of Aberdeen, School of Geosciences, Aberdeen)

The dichotomy between the urban and the rural has in the past often been considered a given fact and a prerequisite for the study of Early Medieval Europe. The emergence of towns or town-like settlements was studied against the backdrop of these views. However, can we still maintain this discourse in present research? How different were the urban and rural, did their differences vary regionally, and can we really make this distinction for the early medieval period? What were the implications for the inhabitants of a particular place? This session aims to explore the character and dynamics between what was considered urban, rural and marginal in all parts of Early Medieval Europe, looking at interplay between communities, trade, power, connections and movement. We particularly welcome participants presenting data from the eastern, southern and northern parts of Europe; novel perspectives on sites from the west; and new data gained through the application of scientific methods, theoretical studies or the analysis of artefacts. We believe that an interdisciplinary re-visitation of this theme has a great potential to further our understanding of the dynamics of the Early Medieval Period and hope to receive a wide range of papers from all of Europe.

## ORAL PRESENTATIONS

### A New Way of Life - On the Emerging Urbanism in Viking Age Eastern Scandinavia

**Charlotte Hedenstierna-Jonson** (The Swedish History Museum, Stockholm)

What is urban life, what separates it from rural life and how can we detect these differences in the archaeological material? This paper deals with the differences between life in the first urban centres and the rural central places seen through sites in Viking Age Eastern Scandinavia. While the central places of rural society upheld administrative and religious functions for the surrounding region, the urban centre was formed by assimilation of different people joined together by common enterprises in trade, crafts and warfare. In an era of centralisation of power and increasing territorial claims the urban inhabitants emerged as an elite with great economic power based on moveable wealth and far reaching alliances and networks. The urban centres were special economic zones separated in function and lifestyle from the hinterland. At times they may even have been perceived as a threat to the established power political structure and to the traditional way of life in the rural hinterland.

### Sites, Settlements and Their Surroundings in the Medieval Pilis Region, Hungary

**Katalin Tolnai** (University of Vienna, VIAS - Initiative College for Archaeological Prospection, Vienna)

In the Hungarian Kingdom the Pilis area, as a part of the medium regni, played a crucial role as a royal centre and hunting domain in the Middle Ages. Besides the sites of royal foundations a well-developed system of settlements was also detected here. Although a great number of settlements were identified in the area the determination of the habitable and non-habitable part of the Pilis and the hierarchy within these sites is still in question. The historical sources and archaeo-

logical remains of the area offer a possibility to give a topographical analysis of the main medieval complexes. Their spatial distribution pattern can be investigated as a part of environmental-historical research based on former archaeological investigations and on recent prospection methods. In this paper the potential of the integrated use of the different kind of prospection and excavation datasets will be presented in order to evaluate the possibilities for modeling the dynamics of an area, and to determine the site distribution and site hierarchy of the studied landscape. As a result of the archaeological interpretation the dynamics of the land use will be analyzed for the landscape.

### **Urbanism by Degrees? The Fortified Settlements of 10th-century Walcheren (Netherlands)**

**Pieterjan Deckers** (Vrije Universiteit Brussel, Brussel), **Bernard Meijlink** (Walcherse Archeologische Dienst, Middelburg)

The circular forts (ringwalburgen) of Zeeland are a well-known site type that is usually studied in relation to the defence against the Vikings in the late 9th century. Their significance as 10th-century nucleated settlements is less often recognized. Recent excavations shed new light on the occupation within three of these forts, all situated on the small island of Walcheren, and challenge the singular narrative in which they are hitherto framed. Although the smallest of these sites, Oost-Souburg, was also the least densely occupied, and on the surface Middelburg and Domburg could be described as urban settlements of the 'portus' type, it is impossible to make an absolute distinction between 'urban' and 'rural' on the basis of what are commonly considered urban features such as craft activity or certain forms of domestic architecture. Instead, the differences are gradual, and each site had its distinct biography and identity. This contribution explores diversity and commonality amongst these settlements and situates them within the regional socio-economic context as well as the wider debate on post-Carolingian urbanism.

### **Settlement Pattern and Material Culture in the Medieval Maros Valley**

**Dénes Szabó** (Museum Móra Ferenc, Szeged)

The valley of the river Maros, in the southeastern territory of the Carpathian Basin, was a key route of connection between the salt-rich Transylvanian mountains and the valley of the Tisza river in early medieval times. The territory was not incorporated into the medieval Hungarian Kingdom until the beginning of the eleventh century, the fall of Ajtony's chiefdom. How did the previous system of settlements, area usage and system of communications change due to organization of church and monarchy administration? How did the late arrival of the inventions of cyclic agriculture influenced way of life, settlement pattern and material culture of the area? What does the sporadic or late written evidence add to the question?

### **A City Turned to Countryside: The Ruralization and Abandonment of a Sixth-century Episcopal See at Byllis, Albania**

**Nicolas Beaudry** (Université du Québec à Rimouski, Rimouski), **Pascale Chevalier** (Université Blaise-Pascal, Clermont-Ferrand)

Sitting on a hilltop in south-central Albania, the city of Byllis was an independent episcopal see in the fifth century AD and one of the most important cities of Epirus Nova in the sixth century. Five churches were built in its urban fabric during this period, while its Hellenistic and Roman civic monuments were being quarried for spolia or built over. This new Christian cityscape included a cathedral, as well as an episcopal complex that gradually expanded into the city. After a massive reduction of the defended perimeter of the city under Justinian, two thirds of the city were left undefended, including two churches, while the episcopal complex dominated the remaining intra-muros city. This paper will report recently excavated data from Byllis to discuss how the city was ruralized, declined, and was finally abandoned under the pressure of migrations and insecurity.

### **Urban, Suburban and Rural Areas in Early Medieval Pisa (Italy)**

**Gabriele Gattiglia** (University of Pisa, Pisa)

Recent studies on Early Medieval Pisa carried on through GIS spatial analysis and predictive modelling reveal drastic settlement changes produced by environmental, political and economic transformations that led to the destructuring of the previous urban area. This process is marked by the end of the domus, replaced by huts, by the creation of a Christian topography, and by a highly ruralised 'urban' landscape in which the topographic continuity of the roads must not be confused with continuity of the urban tissue, which was often characterised by the ruralisation of areas overlooking the roads themselves. The Early Medieval city acquired a polycentric dimension in which the concept of centre and suburb merged. While archaeology depicts a landscape in which the separation between urban, suburban and rural settlements is less clear, the written sources seem to represent a topographical division between the civitas, the area surrounded by the Late Roman walls, even if wide portion of it were scarcely inhabited and took on the aspect of a highly rural suburb, and the places outside, that later became part of the Late Medieval city, considered as villages, so suggesting the partial lasting of a previous mental topography.

## Central Because Marginal? The Complex Evolution of the Antique and Medieval Town of Tournai

**Laurent Verslype** (Centre de recherches d'archéologie nationale de l'Université catholique de Louvain, Louvain-la-Neuve)

Tournai is located along the river Scheldt. At the same time geographically peripheral or central depending on the periods or the kind of territories scrutinized – ecclesiastical as civil as well –, we will observe the evolution of several urban characteristics of the settlement: urban pattern, ways of construction, administration, economy, food providing, population, religion. The urban space itself depends on two different administrative entities during the Antiquity until the 5th century. The episcopal town is then shared between two different bishoprics. Divided into two quarters located on both banks of the river, the urban space has however always been a single territorial entity linked to a wide hinterland, beside an impressive series of other antique et medieval towns which are mainly located along the river Scheldt and its tributaries. Each of them has a particular history that needs to be considered in a complex evolution scheme. One of the most crucial periods in their development is dated back to the 7th and 8th centuries - unfortunately, a very badly documented period for archaeologists. May a long term perspective help to elucidate that question: central despite or because marginal?

## Farmer's Gold: Access to Luxury Goods in Rural Areas in the Early-Medieval Netherlands

**Annemarieke Willemsen** (Rijksmuseum van Oudheden, Leiden)

Access to luxury goods in rural areas in the early-medieval Netherlands Archaeological research into the distribution of jewellery, glass, weaponry and coins from the period c.400-700 AD across the Netherlands has revealed that even small communities in quite empty areas (like Bergeijk and Borgharen) could easily acquire luxury goods like precious metals, translucent tableware and good steel. High tech analysis of the inlays in jewellery and the chemical composition of glass shows that these small villages were part of a trade network that stretched all the way to Italy, Turkey and even India. This implies access to luxury for a broad layer of society, a fine-mesh trade network, and an ongoing supply of goods. All three hint at a surprisingly mediocre degree of hierarchy within and between communities. Indeed, for this period, trade and luxury may be wrongly associated with 'urban' regions, as especially small communities depended on a wider network to be able to exist.

## Becoming Urban in 8th century Ribe

**Sarah Croix** (Aarhus University, Aarhus)

The foundation of the market place in Ribe in the early 8th century is often seen as the starting point of the urbanization of Scandinavia. The origins of Ribe have long been debated, and theories about a foreign impulse, essentially Frisian, as well as local developments have been suggested. Whether an urban life-style was introduced by foreigners or simply learned by locals through various international contacts is difficult to say based on archaeological sources. Even if we admit the mixed character of Ribe's early population, it remains that it did not learn "urbanity" in one day. As the first urban experiment in Scandinavian context, the solutions found for organizing daily life at the market place may be revealing of the tension between urban and rural life. The requirements of economic activities radically different from that of the countryside, as well as the temporality of activities and social practices would have had a major impact on the shaping of an urban life-style. In my paper I will address these questions on the basis of the material from the 1985-1986 excavations at Sct Nicolajgade 8 in Ribe.

## How Rural was Medieval Ulm? Or: Does an Early Palatinate Constitute an Early Town?

**Aline Kottmann** (Landesamt für Denkmalpflege, Regierungspräsidium Stuttgart, Stuttgart)

A research project supported by the DFG (Deutsche Forschungsgemeinschaft) tries to establish the roots of the medieval town of Ulm. One question considered is, how and when Ulm differed from contemporary rural settlements. A distinction could already be established for as early as the 6th/7th century by various archaeological features. The crucial point is that these early features do only refer to individual functions of a widespread housing agglomeration. It is proposed that this did not influence people's perception of two contrasting types of settlements: towns and villages. In the case of Ulm, the outstanding function was a temporary royal residence. Gradually, this required and involved a craftsmen settlement. It is argued that still this could not be regarded as the origin of a town. As long as there were no other people than peasants (apart from royal dependants), how could any settlement be other than rural? Only the setting of independent merchants can be considered to build the base for a 'real town'. This process and therefore the emergence of urban Ulm can be perceived not before the 10th century, whereas 'real villages' emerge even later. In the relevant region there may be a chronological gap of more than two centuries.

## New Type of Rural Settlement at the Turn of the Early and Late Middle Ages in Western Pomerania. Case Study of Będargowo

**Marcin Dziewanowski** (Adam Mickiewicz University, Institute of Archaeology and Ethnology, Poznań), **Paulina Romanowicz** (Polish Academy of Sciences, Warsaw)

There are many white spots in the history of West Pomeranian rural settlement in the Middle Ages. One of those is the chronology and process of the foundation of villages in 13th century, at the turn of the Early and Late Middle Ages. Socio-

economical changes in Western Pomerania during the 13th century included also rural landscape. Changes in character of property in these times resulted in the emergence of new forms of settlement outside the towns. The earliest mention in written sources about Będargowo appears in year 1220, when we learn about the consecration of the altar of the church in that village. There is no doubt that the beginning of building the church, as well as demarcation, must have started earlier, in the late 12th and 13th centuries. The archaeological research carried out in 2012 seems to throw new light on the chronology of foundation and the function of the settlement in Będargowo. The aim of this paper is interpretation of the process of foundation of Będargowo on the basis of archaeological records, as a contribution to the study of the medieval rural settlement in the Western Pomerania.

### **In the Shadow of a Cathedral – The Ruralisation of Old Uppsala, Sweden**

**Joakim Kjellberg** (Uppsala University, Uppsala), **John Ljungkvist** (Uppsala University, Uppsala)

Small and large-scale excavations yielding important results have recently been conducted in the famous central place and burial ground of Old Uppsala, Sweden. Once a Vendel period royal manor, specialized craft centre and famous Viking Age cult centre, the present-day Old Uppsala is a rural and somewhat peripheral suburb. The central institutions established here during the Late Iron Age and Early Medieval Period have all been relocated to the more urban setting of present day Uppsala, a process completed as early as the 14th century. The site retained a special significant position in the surrounding rural landscape in the early modern period, both as a royal farm and as a political and religious arena, linked to the festivities of Saint Erik and the developing nation state. Recent excavations by Uppsala University and Upplandsmuseet have clarified the previously understudied later phases of the settlement around the royal manor and the later cathedral, shedding new light on structures relating to royal and ecclesiastical manors as well as historical sources. This presentation will summarize the results so far and address questions concerning the ever-changing concepts of centrality, urbanism and rurality related to the site.



### **T01S031 - CHANGES AND DEVELOPMENTS IN BURIAL CUSTOMS IN THE EASTERN ANATOLIA AND SOUTHERN CAUCASUS FROM LATE CHALCOLITHIC TO LATE IRON AGE (POST URARTU-ACHAEMENID)**

**Organizers:** **Aynur Özırat** (Mustafa Kemal University, Hatay), **Ali Reza Hejebri Nobari** (Tahran-Modares University, Tehran), **Şevket Dönmez** (Istanbul University, Istanbul), **Mehmet Işıklı** (Atatürk University, Erzurum)

Eastern Anatolia and the Southern Caucasus (Transcaucasia) are among the most important cultural regions in the Ancient Near East, sharing many common features in terms of geography and culture. These two regions, which are located in the northern mountainous belt of Upper Mesopotamia, are defined as the highland. The main features of this vast region are mountain ranges reaching up to 5000 meters, high plateaus and river valleys which ecological niches sheltering among these volcanic ranges. Because of an increase in archaeological projects in recent years, particularly in the territory of the Southern Caucasus, light has been shed on the framework of regional archaeology. In this harsh geographical zone, there were some striking cultural and political transformations throughout the archaeological periods. This change and transformation sequence has been revealed from the rise of the Kura-Araxes Cultural Complex through to the origins of the Urartian Kingdom, which was the first central political structure in the highland. It is through graves and burial customs that these changes and transformations can be viewed effectively, with the evidence ranging from grave types to grave gifts. This evidence also has played a major role in our understanding of the socio-economic, cultural and political stages of the people living in that region. The main goal of this meeting which we are planning is to gather together archaeologists working in Eastern Anatolia and countries of Southern Caucasus (Azerbaijan, Georgia, Armenia and Northeastern Iran) to share and convey information related individual case among them. The target audience is not only the archaeologists from those regional areas but also archaeologists from other countries who are working there. As is known, there are many overseas archaeology teams working in Transcaucasia.

### **ORAL PRESENTATIONS**

#### **The Role of Burials in the Study of Migration Processes**

**Behlul İbrahimli** (Azerbaijan National Academy of Sciences, Institute of Archaeology and Ethnography, Bakü)

Archaeological research of funerary monuments of Nakhchivan which belong to IV - I millennium BC indicate that stone box graves and ground burials which are identical in position and orientation of the skeleton differ in inventory. New types of burials appear here, mainly in the second half of the II millennium BC. Some of them, called tiled graves, differ from common stone box graves and ground burials not only in funeral rite, but also in inventory. These tombs are located on the northern outskirts of the necropolises I Plovdag and Plovdag II. Only pink ceramics were found in these burials. Black and gray ceramics were not found in these burials. "Mitanni" type cylinder seals found in these graves show their Near Eastern origins. Judging by the dramatic change in the type of burials and funeral rites, new, more advanced ethnic groups migrated



to the territory of Nakhchivan at the end of the II millennium BC. After the appearance of these types of burials, kurgans cease to exist. Simultaneously spread new syncretic types of burials, which include elements of mounds and tile graves. It should be noted that after the appearance of these tombs in the valley Gilanchay, collective burial rite start to spread.

### **Burial Customs in the Early Bronze Age in the Shida Kartli Region of Georgia**

**Elena Rova** (Ca' Foscari University, Venice)

The paper will analyse the development of burial customs in the Shida Kartli region of Georgia from the Late Chalcolithic until the end of the Early Bronze age, especially focusing on the Kura-Araxes cultures and on the cultures (Martqopi, Bedeni) of the following Early Kurgan period. It will summarise available evidence (a large part of which has recently been revised by the "Georgian-Italian Shida Kartli Archaeological Project") and compare it with contemporary evidence from the neighbouring regions of the southern Caucasus and of eastern Anatolia. Analogies and differences will be highlighted and an interpretation of them will be attempted in the general framework of diachronic developments in interregional relations in the 4th and 3rd millennium BC.

### **Dismembering the Dead: Archetypal Cosmogonic Mythology and Funerary Rituals in Northern Mesopotamia and the Central Near Eastern Highlands (From the Late Neolithic to the Early Iron Age)**

**Gregory E. Areshian** (University of California, Los Angeles)

Researchers in Proto-Indo-European language and culture suggested that the myth of the first man created by god(s) and sacrificed afterwards for the purpose of creation of specific parts of the Universe out of different parts of his body is the foundational Proto-Indo-European cosmogonic myth. Noting that this myth may have had a broader archetypal substratum and that it does not include the Proto-Indo-European theogony, it is necessary to point out that secondary interment of different parts of human body, which may be interpreted as an archaeological reflection of that myth, is attested in Northern Mesopotamia and across the Central Near Eastern Highlands since the Halaf period (ca 6000-5000 BCE). The continuation of essential features of Halaf burial practices into later periods was recently attested during the excavations of the Late Chalcolithic Areni-1 ritual cave complex (4200-3500 BCE) in Armenia, which provides a better preserved and more detailed archaeological context. Dismembered secondary burials are ubiquitous in the territories between the Kura and Arax rivers during the Early Iron Age (ca 1150-850 BCE). A new interdisciplinary project, which would address the rituals related to dismembered burials, may clarify further the mythological concepts underlying those practices.

### **Early Bronze Age Ananuri 3 Great Kurgan: New Discovery from Eastern Georgia**

**Zurab Makharadze** (Georgian National Museum, Tbilisi)

In 2012 expedition (directed by Zurab Makharadze) of GNM, in Eastern Georgia, in village Chabukiani (territory of Lagodekhi municipality) was discovered and excavated two huge Kurgans ("Chinchriani Gora" and Ananuri #3 Kurgan). Both ones dated as early as second half of 3rd millennium BC. Special interests of scholars attract the Ananuri #3 Kurgan, diameter of which was up to 100m. Height of the clay embankment was 12m., which was overlapped by a stone armor. Under the clay embankment was exposed the space totally covered by the oak timbers. It was roof of the burial chamber. In pit 2.2 m. was placed wooden construction, consisted with hewed timber walls, the floor with same type and three timber pillars for holding the roof. Inner space of this construction was 9,5 X 6 m. Nevertheless, that this huge burial mound was robbed in ancient times, there were discovered lots of unique artifacts. In the burial chamber were placed two four-wheeled chariots, both in good condition, design of which represents fine ornamental details of various styles. Burial had contained large amount of wild and other sort of fruits. All palaeobotanical remains were preserved very well and analyses are proceeding in the laboratory of GNM. Ananuri Kurgan #3 is the distinguishable site, which keeps huge scientific information and its importance is undoubtedly obvious for Caucasian and Near East archaeology.

### **Burial Customs of Early Transcaucasian Cultural Complex in Eastern Anatolia: Problems and Determinations**

**Mehmet Işıklı** (Atatürk University, Erzurum)

The Early Transcaucasian Cultural Complex have been continued its existence in a vast region, for more than one thousand years. Because of its geographical and chronological immensity this cultural complex has presented us with several unresolved problems. One of these unresolved problems is concerning its burial customs and graves, and this particular problem applies further into Eastern Anatolia, which is one of the culture's prominent expansion regions. Although, historically, archaeological investigations have been undertaken for more than one hundred years in the region, unfortunately the number of systematic excavations can be counted on the fingers of two hands. Among those sites which have been excavated there are no necropolis/graveyards; however single graves have been found sporadically at some excavated sites. On the other hand, there are striking finds in regional museums which may have been obtained from graves via illegal excavations. As shown here, the available evidence concerning this subject is scanty and problematic, whereas in the Southern Caucasus, which is the adjacent region, a considerable number of graveyards dating to this cultural complex have been



excavated. The main aim of this study is to make observations and suggestions concerning this problem, by considering the available limited evidence and results of investigations from adjacent regions.

### **Late Bronze-Early Iron Ages Cemeteries in the Van Lake Basin: Survey and Excavations**

**Aynur Özfirat** (Mustafa Kemal University, Hatay)

Our campaigns in the region of Van lake Basin (Eastern Turkey) contain survey and Karagündüz and Hakkari excavations. Survey comprises the period from the Late Chalcolithic period to the Late Iron Age. Eastern Anatolia high plateau shows equal characteristics together with Transcaucasia and Iranian Azerbaijan, which are the geographical continuation, in terms of culture. This wide region share a same culture despite the various regional differences. Many new sites have been discovered in survey. One of the most important finds of survey is Late Bronze-Early Iron Age graves. Late Bronze and Early Iron Age sites generally shows continuity some from the Middle Bronze, but generally from Late Bronze to Middle Iron Age. Early Iron Age fortresses mostly used until Urartu or built neighboring a new fortress by Urartean Kingdom. The fortresses stand a top the hills, where they dominate the plain. They are surrounded with large fortification walls. The cemeteries extend along the foot of the fortresses. Excavation of Karagündüz and Hakkari are only cemeteries which have important material for the Van Lake Region Early Iron Age.

### **Early and Middle Iron Age Burial Contexts in Lake Van Basin**

**Aylin Ü. Erdem** (University of Ege, Izmir)

Underground Chamber Tombs are the most common tomb type in the Lake Van Basin during Early and Middle Iron Ages. Many underground chamber tombs have been unearthed in archaeological excavations in Karagündüz, Dilkaya, Ernis-Evditepe, Yoncatepe and Van-Altintepe in the region of Lake Van Basin. The dead in these burials were usually buried together with personal adornment items and gifts. Besides of ceramic pots, iron bracelets or anklets, iron and bronze pins and rings, necklaces made of various stone beads, and daggers and knives mostly made from iron have been placed in the burial chambers together with the burial. Archaeological results indicate that underground chamber tombs in Lake Van Basin are dated to both Early and Middle Iron Ages/Urartian State. This is the period which represents spanning before and during the state formation. Based on the archaeological finds, I will compare the Early Iron Age burials with Middle Iron Age ones in terms of their content/wealth for the understanding of differences between the two periods.

### **An Overview of the Late Iron Age Burial Traditions in the Eastern Anatolian Highland in the Light of New Research**

**Şevket Dönmez** (Istanbul University, Istanbul)

The archaeological excavations which have been developed in recent years in the Lake Van Basin and Erzurum which are part of Eastern Anatolian Highland have supplied important findings on the Late Iron Age burial traditions. Settlements characterised with cream-lined and decorated potteries which are known from Kızılırmak Basin and their burial sites have been found thanks to the archaeological researches, which are carried out as part of Baku-Tbilisi-Ceyhan petroleum pipelines, at Tasmasor near Erzurum and Güllüdere in the Aşkale Plain. In the South, Van Kale Höyük, a simple grave, where potteries affected by East (North-West Iran), has been found. In the Post-Urartian Period, having similar burial traditions in the different part of Eastern Anatolian Highland points out ethnical diversity or time difference.

### **Bucrania in the Burial Custom of South Caucasia and Anatolia**

**Mikheil Abramishvili** (Ilia State University, Tbilisi)

The paper discusses the burial customs with the skulls of oxen (bucrania) attested at the Bronze Age kurgan graves (barrows) of South Caucasia and the royal tombs of Alaca Huyuk in Central Anatolia, and the connection of this custom with the bull cult that was prevailing religious practice on a vast territory extending from the Aegean and Egypt to Indus Valley from the Neolithic Period through the Middle Ages.

### **Urartian, “Post-Urartian” or Achaemenid: Considerations on Late Iron Age Burial Complexes in the Southern Caucasus and Beyond**

**Christian Konrad Piller** (Ludwig-Maximilians-University Munich, Munich)

A large part of the archaeological material from the Bronze and Iron Ages in the Southern Caucasus consists of graves inventories. The analysis of burial customs is therefore of particular importance. This applies not only for chronological questions, but also for gaining some insights into the development of the material culture, the social structures and the religious beliefs of the peoples in the region under consideration. An important period in the prehistory of the Southern Caucasus is represented by the later phases of the Iron Age, e.g. the period of the Urartian and the Achaemenid rule and the contemporary

local cultures in the area. Within this timeframe there is still a serious gap of knowledge as far as the period after the end of the Urartian Empire is considered. This so-called 'Post-Urartian' phase was hitherto mainly investigated in settlements excavations, while the material from graves remained often unconsidered and seems to have been underestimated in its scientific value. Therefore, the aim of this paper is to investigate the importance of burial customs and grave inventories for the Late Iron Age in the Southern Caucasus and to add some new proposals for the dating of various burial complexes.

### **New Contributions of the Knowledge of the Early Bronze Age Collective Burials in Transcaucasia through the Excavation of the Kurgan of Mentesh Tepe (Azerbaijan)**

**Laure Pecoqueur** (INRAP, Institut National de Recherches Archéologiques Préventives, Centre-île de France, Paris)

In 2008, during the excavation of Mentesh Tepe in Azerbaijan, a collective grave was discovered by chance under a kurgan. Until recently, most researches of grave excavation were carried out because of the material, putting aside most of the bones and skulls. Furthermore, anthropological researches were mainly aiming at identifying the population using a metric analysis of skulls rather than determining the number of individuals present in the Kurgan and their biological identification. So, this unexpected finding allowed for the first time in this country a French taphonomy-based approach of archaeoethnology (Duday 2006). This method, developed in France over the past three decades, is an approach that seeks to reconstruct the conditions and evolution of a burial by examining the position of the skeletal remains as they lie in the grave. In this presentation, we will show you with the Kurgan 4 of Mentesh Tepe's excavation how this kind of approach bring new findings, in particular in the understanding of deposit and post-depositional evolution as well as some unexpected burial practices in this region. Hopefully, this approach will be more used in the future allowing a wider comparison between the known collective graves. Duday H. (2006) - Archaeoethnology or the Archaeology of Death. In: Gowland R. et Knüsel C. (dir.), *Social Archaeology of Funerary Remains*. Oxford : Oxbow Books, p. 30-56.

### **Iron Age Elite Tombs in Southern Armenia**

**Stephan Kroll** (Ludwig-Maximilians-Universität München, Munich)

The late Bronze and Early Iron Age of Southern Armenia (Syunik) is characterized by numerous burial grounds. They consist of simple inhumations or stone cist burials. Sometimes a shallow mound of earth is put on top of the stone cist. Ancient settlements are generally scarce in Syunik, but till now research was unable to identify almost any settlements belonging to the Iron Age. Outstanding among the Iron Age burials sites are places like Sisian II, Uyts, Zorarkarer and Awasihanki Blur. All sites are close to each other in the region of the city of Sisian. Here enormous stone built tomb chambers were found, most of them robbed and destroyed since antiquity. Due to its size they must have been used for local elites and are unique in all of Southern Armenia. Another unique feature can be seen best in Awasihanki Blur. Here in each case two or three tomb chambers are connected to an open fenced courtyard, which may have been used for funerary rituals. Funerary structures like these have not been found before in the Southern Caucasus.

### **A New Group of Iron Age Burials in Azerbaijan**

**Sonja Kroll** (Eberhard Karls Universität Tübingen, Tübingen)

Between 2009 and 2013 twelve Iron Age graves were excavated in Kamiltepe, a mainly Neolithic site in the Mil Plain, southern part of the Republic of Azerbaijan. In this period Transcaucasia was populated by small groups of independent cultures like Hocalı-Kedabeg or Taliş-Mugan. Known are archaeological remains of structured societies which buried their elite in great kurgans, a tradition which first appeared in the Middle Bronze Age. The burials of Kamiltepe are to be dated into early Iron Age towards middle Iron Age. The graves show regional burial customs, also known from neighbored areas like Mugan Plain or Karabagh. This particular case involves simple earth pits, in some cases multiple burials. The ceramic assemblage shows different influences, amongst others technology transfer from northwestern Iran and Urartu. The graves of Kamiltepe are residues of a local elite group and are related to a nearby Kurgan, discovered in the 1960ies by Azerbaijani colleagues.

### **Kurgans Sacrificial Animals the Case of the Jafar-Abad and Tu Ali Sofla Kurgans**

**Farshid İravani Ghadim** (University of Tebriz, Tebriz)

Kurgans, the burial mounds, are associated with the Eurasian Nomadic Warrior Cultures, spanning to the northwestern part of Iran as well. This civilization emerges from confluence of different cultures and civilizations and is the result of a growing process in various dimensions. Kurgans are discovered in Jafar-Abad and Tu Ali-Sofla in Khoda-Afarin region of Aras river in Northwestern of Iran. Only architectural remains of the nomadic peoples. Studying the architecture of these graves, the material culture of them and the burial customs would serve as a good source of information and shed a light on the chronology, ethnography, social and economic relations and social stratification of these populations. Through the animal science in archeology, way of animals buried was used for finding and understanding the way of their living, restoring and feeding of animals from the natural sources. In Kurgan custom there is always animal sacrifice associated with the burial.

## The Settlements of Udabno in Eastern Georgia - Interdisciplinary Studies on the Small Finds

**Rene Kunze** (Eberhard Karls Universität Tübingen, Tübingen)

Udabno is situated in the East Georgian region of Kakheti. Excavation work in three large settlements was started in 2002 and finally completed in 2007. The investigations at the areas of Udabno I–III revealed single-phase settlements, which date in the Late Bronze-/Early Iron Age, i.e. the transition from the second to first millennium BCE. The inventories in the burnt houses were preserved in situ. Altogether, remains of 25 houses were discovered. The aim of this presentation is to examine more than 1400 small finds which were documented stratigraphically during the campaigns. A special focus involved drawing conclusions about the everyday life and organisation in the settlements and trading activities of its residents. A second part includes important information on the production technology of metals, and the reconstruction of trade routes, based on grinding stones, and obsidian, which was the result of archaeometric investigations. The picture of the “agricultural” and “industrial” activities we have gained from our analyses shows us the daily lives of a rural population of a characteristic rural settlement between the Greater and Lesser Caucasus mountains in the Late Bronze-/Early Iron Age which had individual trade links to the southeast of Georgia, northern Armenia and eastern Anatolia.

## POSTER

### The General Evaluation on the Metal Objects from Erzurum Kars Museum: Are They Graves Gifts or not Gülşah Altunkaynak (Erzurum Archaeology Museum, Erzurum)

The Erzurum- Kars Region that it's scientific data isn't known very much in today's geographical limits unfurl it's geographic and cultural relations about any subject with Caucasian territory. Even metal objects' in Region's 2 metropolis and important cities Erzurum and Kars wealth isn't stratigraphic classified but it proves that region has an important potential about it. In this article, most of metal objects that were captured illegally and are remained in mentioned museums would be discussed. Most of these metal pieces bear a resemblance to grave antiques that were captured in systematic excavations of Caucasia and North-western Iran. Also XRF analyses on a part of these pieces support that typological similarity in chemical sense. On the other hand very short amount of metal object that were revealed in excavations of Erzurum Pulus Mound and dated to Early Bronze Age- Early Metal Age may support our opinion. In this work, first a comparison will be made between these metal objects that have classification in Erzurum-Kars Museums and Grave antique in surrounding regions. In the end of this work we aimed on a general evaluation about metal objects' that have an important place in Treasure Custom of the region (South Caucasian- East Anatolia) place in prizes and Treasure Custom.



### T01S032 - CONNECTING CULTURES, MARITIME FLOWS: TOWARD AN HISTORICAL ARCHAEOLOGY OF THE MEDITERRANEAN

**Organizers: Thomas Gallant** (UC San Diego, University of California, San Diego), **Russell Palmer** (Department of Archaeology, Ghent University, Sint-Pietersnieuwstraat)

The study of post-Medieval archaeology is a growing field of inquiry globally. In the Mediterranean region it has often been included in large-scale projects aimed at exploring the *longue durée*, seen as an extension to Medieval archaeology, or has taken the form of rescue archaeology. Consequently, it is rare that researchers meet to discuss post-1400 archaeology. In this session we aim to both provide a platform of communication and an assessment of the current state of Mediterranean post-Medieval/historical archaeology. We invite papers that address terrestrial and underwater archaeology historical sites, along with methodological and interpretive approaches. The papers will be empirically grounded at sites from all regions of the Mediterranean world and will focus on the ways that people, ideas, and commodities flowed across the region connecting cultures and creating networks that helped shape the modern world. We would also like to include papers that critically assess issues that may create challenges for current and future Mediterranean historical archaeology, such as the impact of legislation or national disciplinary traditions.

## ORAL PRESENTATIONS

### Post-Medieval Archaeology in Italy (1970-2013)

**Marco Milanese** (University of Sassari, Sassari)

The paper discusses the training process of Post-Medieval Archaeology in Italy, in relation to the birth of Italian Medieval Archaeology and Global Archaeology. Post-Medieval Archaeology in Italy is today an area of research characterized by a strong interdisciplinary approach, in connection with the sciences, anthropology, and sociology. The discipline is a control room where we are working with a sources system in which the historical perspective is not dependent of questions of his-

torical written sources, but following their own agenda of research that suggests rethinking in areas of research considered the exclusive property of macro-history, such as conflicts, massacres, but otherwise even the environment, demographics, epidemics, and mentality.

### **The Trouble with Maritime Trade**

**David Small** (Lehigh University, Bethlehem)

It is now a commonplace that the eastern Mediterranean was subject to food insecurity and that one of the means by which various polities were able to feed their populations was through interpolity trade in grain. Grain was shipped, often by wealthy merchants and often through the agency of elites and their contacts with elites in other parts of the eastern Mediterranean. I have argued one of the shortfalls with this method of procuring needed grain was that it was usually out of the hands of the polis itself. Different cities were at the mercy of merchants and land holding elites whose extrapolity economy could often be used to undermine the state. This scenario is true for the Classical, Hellenistic, Roman, and early antique periods in the Mediterranean. What I seek to do in this paper is to examine the role of this trade in the Byzantine and Early Modern period to see if the same situation was prevalent. Focus will be placed on island communities in the Aegean, especially during the period of Venetian ascendancy when interpolity trade in grain would have been subject to larger political forces.

### **Beef from Barbary, Gin from Holland: International Foodways in a British Officers' Mess, Malta**

**Russell Palmer** (Ghent University, Ghent)

Nineteenth century Malta was awash with British military personnel that needed housing and feeding. While soldiers' rations were supplied by the army, officers were supplied through contractors that often worked across regions (such as Mortimer & Co., who supplied British officers across the Mediterranean). In Malta, the development of a permanent colony also meant that an additional range of "British" goods were available through the shops in Valletta. On an island that became home to many for years, and in which many British social activities and norms were replicated, officers were forced to translate unfamiliar aspects of daily life, such as food and cooking traditions, to their British palate. By analysing archaeological material found at an officers' mess site in Vittoriosa, Malta, this paper will situate the eating, drinking, and dining habits of mid to late nineteenth-century British officers within an entangled world of movement, people, and objects.

### **Stem the Flow / Disconnect the Culture: How Cold War Albania Rejected Traditional Network Systems in the Mediterranean**

**Emily Glass** (University of Bristol, Bristol)

Albania is geographically located in the centre of the northern Mediterranean between classical Greek and Roman worlds and along the western limits of the historic Ottoman Empire. Although the country was granted independence in 1912 it was subjugated during the Second World War by German and Italian forces. After liberation, Albania was ruled by a communist leadership for almost 50 years which caused a localised rupture in the historical trajectory of Mediterranean socio-economic and cultural traditions. This paper will explore how the ideologies and political systems installed by the Albanian dictator Enver Hoxha were used to state-manage people and commodities, reject neighbouring territories and close borders. This shift was supported by the USSR and China which enabled Albania to join a world-system of socialism that stretched far beyond the traditional Mediterranean sphere. This extreme level of control, which saw Albania employing a trans-global flow of trade and ideas, has resulted in a unique example of how history can be overcome through political will matched by 20th century technologies and communications. These extents simply could not have been achieved at any earlier time in the historical period and the legacies of this radical era are still evident in the country today.

### **Drugs in Stari Bar: Chocolate, Coffee, Alcohol and Tobacco in the Ottoman Times**

**Sauro Gelichi** (University Ca' Foscari, Venice), **Margherita Ferri** (University Ca' Foscari, Venice), **Lara Sabbionesi** (University Ca' Foscari, Venice)

This paper aims to analyse material culture as a mirror of behaviour of groups living in post-medieval Stari Bar, a deserted town on the coast of Montenegro. The Ottoman period in the city (1571–1878) is characterized by the presence of coffee cups and pipes. However, we noticed the presence of some characteristic glass vessels related presumably to consumption of alcohol and chocolate. Those drugs have a similar pattern of diffusion in West and East part of Mediterranean until beginning of 18th century. In the Ottoman world, at the beginning of 18th century, those substances are seen as dangerous for the social order, comparable to the exotic objects. Muslim and non-Muslim similarity of reaction or acceptance of Western goods must be noticed. In this same period those objects related to exciting substances spread definitively, showing a late diffusion compared with other Balkan areas. We aim to analyse spread of those objects (pipes, coffee cups, glass bottles and chocolate beakers) as markers of diffusion of those drugs and a visible evidence of the acceptance of a specific culture and habits. Could chocolate and alcohol being considered, as coffee and tobacco, an acknowledgement of the new political and religious order?

## **Post-Medieval Ceramics from Manises and Valencia. Productions and Mediterranean Trade**

**Jaume Coll Conesa** (Museo Nacional de Cerámica, Valencia)

The medieval pottery of Paterna and Manises achieved great prestige and considerable commercial broadcast during the 14th and 15th centuries in the Mediterranean and Atlantic Europe. Although we can observe its decline during the 16th and 17th centuries due to the new strength of Italian majolica, its distribution was not limited despite representing outdated styles and tastes. In the 18th century, a commercial recovery of Valencian ceramics and tiles started from factories in the city of Valencia and in the villages of Manises and Alcora. The Royal Factory at Alcora, a town in the north of the region in the present province of Castellon, played an especially important role in reviving a taste for Valencian ceramics and reaching a significant worldwide distribution. In this paper I present an overview of the ceramic production of the Valencian region, between the 16th and 19th centuries, and its distribution from archaeological and historical evidence.

## **Mediterranean Vistas, Local Experiences: An Historical Archaeology of Everyday Life on a Greek Island: Andros 16th–19th centuries**

**Thomas Gallant** (University of California, San Diego)

This paper examines the historical archaeology of everyday life using the preliminary results of KASHAP [the Kefallenia and Andros Social History and Archaeology Project]. The project brings together historians, archaeologists, natural scientists, big data graphics specialists and others to track the human and environmental histories of the islands. It explores the social and economic systems as well as the material culture of these two island. One main theme of the project is how being integrated as peripheries into major premodern empires, the Venetian Empire and the Ottoman Empires, shaped everyday life and how the transition from empire to nation-state impacted society and economy. The first phase of the project has focused on the northern region of the island of Andros, concentrating on the collection of environmental data, the mapping of agricultural field systems, plotting the road network, analyses of terrace walls, the excavation of two farmhouses that were occupied from the late 17th to the late 19th centuries, and the collection of archival materials (land leases, sales agreements, dowry contracts, and wills, for example).

## **Archaeology of the Enlightenment: A Naval Hospital in Menorca, Spain**

**Amalia Pérez-Juez** (Boston University, Boston)

The island of Menorca, Spain, belonged successively in the 18th century to Spain, England, France, again England, and finally Spain. During this period, the British constructed their first purpose-built naval hospital on Isla del Rey, a small island in Mahon Harbor, used until its abandonment in 1964. To date heritage-related efforts on Isla del Rey have focused on the architectural restoration of the hospital buildings as well as the development of exhibit spaces. In 2013 Boston University started a collaboration with the Foundation “Amics de la Illa del Hospital” to develop an integrated program of archaeological research and heritage management for the island. The preliminary results have yielded information about Menorca’s trading and shipping networks during the 18th and 19th centuries, and about the construction, use, and phasing of the principal hospital buildings. However, archaeology is still not a priority for many restoration projects of post-medieval sites. The availability of written records, along with the often well preserved architecture, seem enough for most institutions, whether public or public, to conduct renovation projects. In this paper, we present preliminary results of our work at the naval hospital and argue for the need to incorporate archaeological research into late-period restoration projects.

## **(Un)familiar Landscapes: Archaeologies of the Greek Contemporary Past**

**Dimitris Papadopoulos** (Independent researcher, New York)

Traces and remains of the modern and contemporary Greek past, from Ottoman monuments and urban and rural architecture to traditional land use, industrial areas or conflict sites are rarely per se the focus of archaeological research. If not researched as part of regional, diachronic survey projects or marginally discussed as extensions of post-Byzantine art and architecture they are simply neglected. This paper reviews the institutional and legislative framework and discusses current disciplinary approaches to the contemporary Greek built environment and material culture. Based on cases of recent research projects it explores challenges and possibilities for critical, inclusive and multi-temporal Greek archaeologies and cross-disciplinary encounters with anthropology, geography and urban and architectural history.

## **Montelupo Oil Jars: Source, Contents & Diffusion**

**Hugo Blake** (Royal Holloway, University of London, London), **Michael J. Hughes** (Independent Archaeological Scientist, Harpenden)

The Tuscan and specifically Montelupo origin of the characteristic large oil jars found all over the world was confirmed by neutron activation analysis about 20 years ago, although archaeologists working in the Caribbean still tend to call them Iberian. This paper will present the so far unpublished analytical data of some British and Australian finds and, building on Ron Coleman’s work on the role of the Royal Navy in their diffusion, will reconsider whose oil they contained, using Italian records. These show that in the 18th century Montelupo despatched coppi along the lower Arno river and canal system



to Lucca, where the best quality olive oil was made, and to Livorno, then the largest emporium in the Mediterranean for transit trade and equipped with an enormous warehouse to store the cheaper southern Italian olive oil. The cosmopolitan, tolerant and neutral freeport of Livorno was Britain's principal commercial base in the Mediterranean, from whence both qualities of olive oil were shipped.

### **Historical Archaeology in the Aegean: The View from Archaeological Survey**

**Athanasios K. Vionis** (University of Cyprus, Nicosia)

Developments on intensive surface artefact survey in the Greek countryside as well as the systematic excavation projects in contemporary urban centres in Greece have been providing a considerable amount of information about Post-Roman activity in both urban and rural contexts. Medieval and Post-Medieval Archaeology in the Aegean lands have seen a noteworthy development over the past two decades, surpassing the previous long-lasting quest for Classical Greece. This paper aims towards the evaluation of Historical Archaeology in present-day Greece by presenting an overview of recent and ongoing advances in landscape research and settlement analyses on the Greek Mainland and the Aegean islands, with particular reference to the region of Boeotia and the Cyclades. Results concerning settlement formation, material culture, inter-regional contacts and economic activities during the High Middle Ages and the Post-Medieval era will be discussed within their historical and cultural framework.

### **The Central Market of the City Bolgar in the 14th century**

**Vladimir Koval** (Institute of Archaeology of Russian Academy of Sciences, Moscow), **Denis Badeev** (Institute of Archaeology of Russian Academy of Sciences, Moscow), **Airat Sitdikov** (Institute of Archaeology of Academy of Sciences of Tatarstan Republic, Kazan)

Excavations of the central market in the city of Bolgar, which was a main centre of the Volga Bulgaria under the power of the Golden Horde in the 14th–15th centuries, allowed almost completely open the ruins of the large building (34 x 34 m) with a brick wall around the perimeter and the system of passes and shopping places inside, built in the mid-14th century and destroyed 10–20 years later. These excavations were given a unique material relating to trade links of Eastern Europe with Iran, China and the countries of Western Europe. The last are cloth seals of Flemish textiles and weights, imported from Germany or imitated Europeans. New materials prove that Bolgar was one of the biggest shopping centres of medieval Europe.

### **Discussion**

**Jack Davis** (University of Cincinnati, Cincinnati)

As invited by the organizers, the purpose of this paper is to present an overview of the themes presented in the session, together with a round-up and comments regarding future directions of historical archaeology in the Mediterranean region.

## **POSTERS**

### **Landscapes of Connections, Landscapes of Conflicts: Coming to Terms with an Archaeology of the Ottoman Empire**

**Lynda Carroll** (Binghamton University, Binghamton)

In the Eastern Mediterranean, post-medieval archaeology is an archaeology of the Ottoman Empire. Multi-ethnic, multi-religious and multi-linguistic, the Ottoman Empire connected a myriad of people, ideas, and commodities throughout the region, and beyond. Archaeology of the Ottoman Empire reveals the materiality of these connections. Baram has argued that these materialities illustrate the shared experiences of Ottoman subjects, and that Ottoman material worlds can be used to historically and culturally unite people of this region. Trade through the empire, as the cross-roads of three continents, created a cosmopolitan experience for people who could participate in dynamic, non-nationalist identities and coexistence. However, the Ottoman period is also characterized by contested landscapes – the result of political tensions and cultural transformations of an imperial system. This duality – of examining the materiality of the Ottoman world as a way to understand both coexistence as well as contested spaces – is a challenge for future historical archaeologies of this period. This paper will examine this duality in the Late Ottoman period, specifically through the transformations of physical landscapes that were the result of new land tenure policies and expanding capitalism, as a way to understand connections and conflicts of the region's recent past.

### **Cross-Cultural Exchange in the Post-Medieval Adriatic: An Examination of Economic and Cultural Interactions through an Analysis of Glass Cargos from Shipwreck Assemblages**

**Samantha Garwood** (University of Sheffield, Sheffield)

This project looks at glass produced and traded in the Adriatic region during the 16th and 17th centuries as a means of studying the exchanges that took place between religiously and culturally diverse communities. Specifically, I am examining



glass vessels, windows, mirrors, and beads recovered from the wrecks of merchant ships. Through typological comparisons to coastal and inland sites, I will be discerning these objects' functions, provenances, and potential intended destinations. By analysing the diversity of stylistic types and technical skill between objects transported on the same ship, I am looking to re-examine Adriatic trade networks between Venice, Ragusa, and the Ottoman Empire, and particularly to question the role of smaller coastal cities, both in terms of production and consumption, within the wider economy of the region. Finally, this project aims to explore the nature of cultural relations between communities as reflected in the objects themselves, as part of ongoing research for my PhD thesis.

### **Postmedieval Ceramic Kilns from Anversa degli Abruzzi (Italy): A Multidisciplinary Approach**

**Van Verrocchio** (Centro Studi per la storia della Ceramica di Albisola, Savona)

Anversa degli Abruzzi is a small town located in Abruzzo (Central Italy), approximately 150 km east of Rome, with a tradition of ceramic production from the beginning of the 16th century until the mid-19th century. The archaeological sources show that the main ceramic productions of Anversa were cooking glazed pottery of current use and slip coated pottery that had a moderate commercial success in and out of Abruzzo region between 16th and 17th centuries. In the village still has several furnaces for the production of ceramics, the oldest of which date back to the 18th century. The joint study of archival sources and the archaeological, together typological and stratigraphic analysis of the structures still visible in situ, in a multidisciplinary perspective, enables us to propose a first type of such production structures and their comparison with other kilns for ceramic production at the present time known in Abruzzo.



### **T01S033 - NETWORKS AND INTERSECTIONS: PERSPECTIVES ON COLONIAL ENCOUNTER AND ENTANGLEMENT**

**Organizers:** **Jonathan Finch** (Department of Archaeology, University of York, York), **Jonas M. Nordin** (Uppsala University, Uppsala), **Magdalena Naum** (Department of Archaeology and Ancient History, Lund University, Lund), **James Symonds** (Universiteit van Amsterdam, Amsterdam), **Krish Seetah** (Stanford University, Stanford)

Early modern and modern colonial expansion had an irreversible impact on material culture, mobility, modes of production, use of space, consumption and diet. Colonial encroachment on the fringe areas of European kingdoms and on the territories in distant continents established novel connections and dependencies between places, enforced and stimulated a flow of people and things and led to cross-cultural interactions. These encounters and more permanent cohabitation engineered new identities, worldviews and human-object-landscape entanglements. This session aims to discuss archaeological aspects of colonialism and the colonial world and intends to create a platform for archaeologists dealing with questions related to the subjects of power, networks, exchanges, consumption and material entanglement in the colonial settings of early modern and modern period. It builds on a well-received session at EAA in Helsinki in 2012.

### **ORAL PRESENTATIONS**

#### **Spaces of Entanglement: Space, Place and the Entanglement of History**

**Stephen Mrozowski** (Fiske Center for Archaeological Research, Department of Anthropology, University of Massachusetts, Boston)

This paper explores the notion of Historical Gravity as a conceptual framework for understanding the entanglement of histories and space. Drawing on examples from both the recent and deeper pasts, this paper examines how the cumulative weight of events and histories become ensnared with particular spaces transforming them into places of memory, commemoration and long term habitation. Comparing historical gravity to issues of mobility and spatial practices, this paper presents a framework that has proven useful in interpreting hybridized spaces ranging from well known early sites such as Stonehenge and Poverty Point, to later New World Plantations in New York and Barbados, to Native American communities in New England. Drawing a series of case studies this paper explores the purposeful entanglements of things, spaces and histories in an attempt on the part of their builders to influence the course of history and shape particular histories.

#### **Networking the Encounter: Caribbean Entanglements across the Historical Divide**

**Angus Mol** (Leiden University, Leiden), **Corinne L. Hofman** (Leiden University, Leiden), **Jorge Ulloa Hung** (Leiden University, Leiden), **Floris Keehnen** (Leiden University, Leiden)

In this paper we will combine archaeological and historical perspectives to explore the social and material entanglements that were the result of the first sustained encounters between the New and Old Worlds. The sharp divide between the pre-colonial and colonial histories of the region has resulted in a severance of the original entanglements between people and things on both sides of the Atlantic. Considering the region's rich indigenous archaeological record, and the fact that Amerindian biological and cultural continuity is evident amongst descendant communities throughout the Caribbean, in

contemporary oral traditions, as well as in cultural and religious practices, it is necessary that indigenous Caribbean contributions are once again foregrounded in contemporary discourse and global history. This paper will discuss how indigenous engagements with European material culture and vice versa had a formative influence on the development of later intercultural dynamics in the Caribbean area and beyond. It utilizes a network approach to analyze the dynamic entanglements between social and material repertoires and practices that emerged during this period. A number of case-studies illustrate the perpetual influence of indigenous Caribbean cultures on the networked society of colonial times up to today.

### **The Atlantic Connection? Identity and Place, Enslaved and the Free**

**Jonathan Finch** (University of York, York)

This paper will explore the interconnection of identities forged against the backdrop of the Atlantic Slave Trade. Connecting sites in the Caribbean and UK sharing a common ownership, it will look at the landscape and material culture that were involved in creating identities amongst the enslaved and the slave owners. Based on fieldwork and excavation it will argue that plantation work areas were important places for identity construction amongst the enslaved and that similar archaeological methodologies should be employed in the UK to articulate the identities of slave owning families who benefited from the income generated in the Caribbean.

### **North West England and the New World: The Transformative Impact of Colonisation on North Lancashire and Cumbria in the 17th and 18th centuries**

**Richard Newman** (Newcastle University, Newcastle)

The modern area of north Lancashire and Cumbria was transformed in the 17th and 18th centuries by the effects upon it of engagement in the wider Atlantic economy and through its colonial contacts in both Ireland and the Americas. Until the 17th century this area had always been physically and economically peripheral to England. It was on the border with Scotland, had a great deal of agriculturally marginal land, a relatively low population and little urban development. The impact of colonial development and trade with at first Ireland and later the Americas, especially Virginia, transformed the area. It allowed the development of new towns, the architectural enrichment of existing towns, investment in port facilities, the development of industries and facilitated wider investment in the agrarian economy. It changed the nature of the area permanently, influencing customs, identities and memories. This paper will examine this transformation through the material cultural remains that resulted from it.

### **Aqua Vitae Hath such Virtue: Alcohol and Early Modern Atlantic Colonial Encounters**

**Audrey Horning** (Queen's University Belfast, Belfast)

Alcohol served as a considerable source of anxiety for the British political elite in the early modern Atlantic world. In Ireland, unregulated production threatened the economic and social stability of the plantation efforts designed to subdue the Irish population. Of greater concern was the proliferation of unlicensed drinking establishments catering to mixed English, Scottish, and Irish clientele, liminal spaces which encouraged the emergence of syncretic practices but also facilitated violence. For the Gaelic elite, ritualised drinking was a marker of status; a practice mimicked and occasionally subverted by the English planter elite. While alcohol production and consumption was thus central to both Irish and English society, albeit governed by different customs and expectations, alcohol was not a significant element of the cultural repertoire of the Native peoples encountered by the English at Roanoke and Jamestown. Within a short period of time, however, alcohol became central to intercultural diplomacy as well as conflict. The consideration of alcohol and its archaeological signatures emerges as a productive vehicle for multi-scalar examinations of early modern colonial encounters.

### **Lions, Empires, and the Sea**

**James Symonds** (Universiteit van Amsterdam, Amsterdam)

This paper deploys the theoretical concepts of duration and flow to explore the changing meanings and uses of white marble statues of lions in port cities. The paper is inspired by the works of Henri Bergson, and Alfred Gell, and seeks to explore how the abductive powers of lion sculptures have mediated social agency over the course of more than two millennia. The paper adopts a biographical approach and explores the changing meanings of several well-known marble sculptures through time and across space, from their early associations with portals and funerary monuments in the Mediterranean, Ancient Greece and Asia Minor, through to their appropriation and re-use in the pre-eminent port cities of the medieval and post medieval world, from Venice in the south, to Stockholm, and London, in the north.

### **Religious Entanglement in Mauritius**

**Saša Čaval** (Slovenian Academy of Sciences and Arts, Ljubljana)

Colonial Mauritius was divided into a dense network of sugar estates. The relationship between planters and workers has generally been viewed as full of oppression on one side and resistance on the other. Yet, in some cases (i.e. certain modes

of sugar production or logistics) planters and indentured labourers were required to cooperate with each other in order to facilitate their own objectives. Furthermore, both written sources and archaeological landscape approaches demonstrate that planters played an instrumental role in facilitating worker access to, and maintenance / recreation of, their religious traditions and identities in this new land. They ‘allowed’ the temples and churches to be built for (and by) the immigrants. This paper interdigitates object (in the form of religious architecture) and landscape (placement) to reveal nuanced details of human cross cultural interaction as played out in the expression of religious festivities and cyclical performance. The paper explores both the origins, and contemporary significance of religious identity on the island.

### **Concurrent Colonialism: Sápmi, Sweden and the Atlantic World in the Seventeenth century**

**Jonas M. Nordin** (Uppsala University, Uppsala)

Scandinavian colonial exploitation concurred with that of the Dutch, English, French and Spanish in North America (and elsewhere), with a takeoff in the early seventeenth century. Sweden, along with trade companies with support from the state, introduced an intense exploitation of natural resources, people and land in the far North in the same time period. At the same time an intensified industrial form of production (i.e. metal-works) was introduced in Sweden as well as Sápmi with the support of Dutch capital and Dutch migrant workers. These work-sites share several traits with the concurrent innovation – the plantation – and will in this paper be scrutinized as a local version of a new global form of exploitation. The local plantations were however not only local responses to a global transformation but can be viewed as indigenous development within the framework of nascent capitalism. The foundations of works were concurrent with the founding of towns, markets, school systems and an academic discourse on describing and categorizing the indigenous people of the North – Sámi – as well as the North American Indian. This paper will discuss case studies from works and market-places in Swedish Lapland, Sápmi, in the light of concurrent colonial exploitation in America.

### **Colonial Process and Indigenous Actors**

**Per Cornell** (Department of Historical Studies, University of Gothenburg, Gothenburg)

The Colonial Process and the Indigenous Actor In most traditional narratives on the European conquest of the Americas, the subject of colonisation is merely a victim. While most colonial projects were terribly destructive and violent, the process of colonisation is always complex and multifaceted. In the case of the Americas, also areas outside direct colonial control are important, and should be given due attention. Through a set of short cases, the differences in the colonial process, and its complex forms, will be addressed. Particular attention is given to settlements and the variability in settlement forms.

### **The “Things” of Culture**

**Krish Seetah** (Stanford University, Stanford)

Based on recent work in Mauritius, this paper discusses how post-medieval identity construction on this small island was both dependent on the retention, and absence, of the ‘things’ of culture. The paper explores this through the lens of forced vs. ‘free’ labour provision, comparing the individual ethos that underpinned these modes of labour, and illustrating that to retain the things (material and intangible) of our past, is as imperative as retaining the knowledge of our past.

### **Let the Past in: Empowering the Post-Colonial Present through the Pre-Colonial Past**

**Charlotta Hillerdal** (University of Aberdeen, Aberdeen)

Despite relatively late colonial contact in the 1820’s, inclusion in the European world-system had a disruptive effect on the Yup’ik way of life: Western evangelisation, schooling and material culture forced Yup’ik culture to take new expressions, and old customs and beliefs were abandoned or converted to correspond to Western mindsets. In recent years, social marginalization and sense of identity loss have been countered through a revival of Yup’ik heritage and traditional customs. However, archaeology is only now finding its place in this movement. This paper presents the Nunalleq (‘old village’) archaeology project, a collaboration between archaeologists and the Yup’ik community of Quinhagak, Alaska. Focusing on a Bering Sea pre-contact village site, this project strives to bring together archaeological investigations and local traditional knowledge to recover the virtually-unknown Yup’ik past. The excavation is a focal point for stories about the past – compiled from local memories, as well as archaeological evidence. The intersection between past and present created by the archaeological process shapes a meaningful material heritage, embedded in the local culture and animated by scientific discoveries. This project demonstrates that, when in true partnership with local stakeholders, archaeology can overcome its colonial history, and empower descent groups in a post-colonial world.

## **THEME 2**

**“Managing Archaeological Heritage:  
Past and Present”**



## THEME 2: MANAGING ARCHAEOLOGICAL HERITAGE: PAST AND PRESENT

We are living through times of change. Practices that would have been either unthinkable or unacceptable just a few decades ago have now become routine. The meaning and spectrum of heritage has considerably increased to cover a diversity of topics. Conceptual changes range from the way cultural landscapes are perceived, wetland management, industrial or rural heritage, governing legislations, practices and even more specifically, the interface between academic and social concerns. While the number and types of heritage sites to be protected is increasing, destructive agencies such as development projects, mechanized agriculture, as well as expanding urban and industrial centres are becoming a threat even for the most reputed sites.

Yet another controversy is the changing equilibrium between sophisticated new methods of documentation and the pressure of tourism to develop showy site displays. The former necessitates a much slower pace to document and research, consequently minimalizing the areal coverage of excavations, while the latter demands the exposure of extensive areas. Consequently, the vestiges of the past are being adulterated and even abused through hasty reconstructions overriding professional codes and by implementing biased interpretations.

While threats and pressures accelerate, new restrictions in funding research projects, not only have diminished funding streams, but have shortened their duration to a maximum of two years. These new policies now stand as major obstacles in the development of archaeology. Thus, work solely based on academic concerns has already been taken over by rescue archaeology.

On the other hand, with the outstanding achievements in the natural sciences, archaeology has attained a new role providing data for new research projects that could be tested and verified through the evidence from the past. This has eventually led to the emergence of new, multidisciplinary fields; however, with the caveat that data is now acquired from extremely limited exposures.

The theme considers discussions of issues regarding heritage management, the history of archaeology, conservation, restoration, risk management, illicit archaeology, salvage or rescue archaeology, virtual archaeology and virtual museums.



### T02S001 - ON THE ETHICAL SIDE OF PUBLIC ARCHAEOLOGY (Round Table Session)

**Organizers:** Jaime Almansa-Sánchez (EAA Working Group in Public Archaeology, JAS Arqueología S.L.U., El Cabaco), Lorna Richardson (University College London-UCL, London)

Nowadays, public archaeology, or more strictly community archaeology, has become a trend among archaeology professionals. The concept that working with communities is important brings with it another assumption: doing so is simple. However, community archaeology brings with it a series of ethical and practical difficulties. These issues are just the tip of the iceberg of wider challenges for public archaeology: Understanding the communities we deal with, how we undertake co-created projects with non-professionals, why we, as professionals would want to, and need to do this, and the consequences of this work, are questions that urgently need further scrutiny. We must also consider the kinds of projects we should be involved in, the consequences of these projects, the scope of our impact and how can we support communities, whilst maintaining our professionalism. Following the debate in Pilsen 2012, this session seeks to delve into the multiple ethical implications of the practice of public archaeology and the possible solutions we can find to the issues raised above in these two blocks: -Ethics in the community: How do we work with(in) local communities. -The ethics of a political practice: What are the consequences of our work within today's Europe.

## ORAL PRESENTATIONS

### Thin Red Line

**Jaime Almansa-Sánchez** (JAS Arqueología S.L.U., El Cabaco)

Codes of ethics are wide spread among professional associations. What is ethical? Basically any work that fulfills legal requirements is ethical, but should we always agree with laws? Furthermore, is it possible to write in paper what is and is not ethical in such a clear way that there are never doubts? This thin red line between ethical and unethical is even thinner in public archaeology, where consequences of our work go beyond heritage and even beyond laws. Through two examples from Spain, I will try to delve into the topic and, maybe, question some of our ethical standards.

### Communities of Interest: The Pan-European Policy Framework for Public Archaeology

**Adrian Olivier** (Institute of Archaeology University of London, London)

The Valletta Convention recognised the importance of building public awareness to promulgate the value and protection of the archaeological heritage but there has been little success in transforming this into meaningful political support and



achieving success in the way that has worked so well for the environmental and conservation movements. The Florence and Faro Conventions articulate the importance of engaging local, community and public values to demonstrate clearly and unequivocally the public benefit of archaeology which is readily claimed but often unjustified in practice. The traditional boundaries implicit in the current structures and practice of archaeology are disappearing as the subject is increasingly democratised by digital technologies; a new matrix is required that delivers increased public benefit as well as supporting integrated value-led conservation. Heritage professionals will need to respond more flexibly to the evolving public attitudes that result from these changes and require a more sophisticated understanding of all the different values that are being brought into play in their work today in a global context of human rights and democracy. The Faro Convention provides no solutions to the dilemmas archaeologists will face in the future, but it does provide a useful framework to explore potential answers.

## **Outside Our Comfort Zone: The Ethics of Engaging with Governments in the 2010s**

**Rob Lennox** (University of York, York)

This decade looks set to be remembered in Europe for the economic downturn which large parts of the continent have been experiencing over the past several years. In many European nations, this economic pressure has been accompanied by a visible trend towards centre-right governance practices. These two interlinked factors have substantially changed the landscape of heritage and archaeological engagement with government, forcing public archaeologists to adopt new practices in order to influence governments and to protect the social benefits derived from their work. In the UK, the ethics of public archaeology have been affected by a change in governmental relationships with archaeology and heritage bodies, a decreasing governmental interest in social policies, and sweeping cuts across the sector leading to a decline in local and national services. Drawing largely on political advocacy experiences in this UK context, this paper will explore how new these new challenges are leading to the development of a new ethics of political engagement in archaeology and heritage, and what lessons we can learn for coming years.

## **Why Being a Public Archaeologist Should Be an Ethical Duty**

**Alexandra Ion** (University of Bucharest, Bucharest)

In this paper I intend to explore the second question raised by the organisers of this session: “The ethics of a political practice: What are the consequences of our work within today’s Europe.” The way I will take this argument is by reversing it: why being a public archaeologist should be an ethical duty. We are undergoing times in which economic and political decisions are affecting large communities, changing old ways of life and shaping new landscapes. In this context, the traces of the past (heritage and archaeological sites) are caught in the middle and what happens with them in turn affects, destroys or reshapes the way communities’ identities are imagined (as the traces of the past contribute to creating the sense of place, community ties, shared history, traditions, values etc.). Consequently, as I am going to show through particular case-studies from Romania, preserving/researching or destroying such sites is not just a matter of “preserving culture”, but of preserving/shaping communities. Thus, archaeologists have an ethical duty of going public and making people think; archaeology can become a powerful tool for understanding the world, our own identity within it and critically reflecting on how communities want to have their future shaped.

## **Public Archaeology - Public Research**

**David Connolly** (British Archaeological Jobs and Resources-BAJR, Haddington)

Outside Public Archaeology there is a pervading belief that normal rules do not apply and that the generally acknowledged standards expected from an archaeological project can be relaxed or the final outcome will be of no value to research in general. Facing down the challenge that community work is only pandering to the public, it is our contention that this is an outmoded view and work should always strive to exceed current archaeological standards. Using examples from the three main strands of participant led archaeology: 1. Open Access Archaeology (anyone can participate at any point during the work); 2. Guerrilla Archaeology (short term low cost projects with skill based outcomes); 3. Traditional community projects (involving more formal volunteering procedures). The belief is that within any of these broad types of public archaeology projects there is no need to compromise ethical considerations or reduce professional standards. A project should already have clearly defined objectives from the outset in a way no different from sites excavated as a result of commercial development which are not chosen for their research potential. Public archaeology can and does provide no less of an end product when conducted to the appropriate tenets of best practice.

## **How Archaeologists are Kicking off Everywhere**

**Samuel Andrew Hardy** (Institute of Archaeology University of London, London)

Public archaeology has long been underpinned by a reserve army of labour. Through the crisis and its associated austerity measures, European states and cultural heritage institutions have further normalised and institutionalised voluntary work, unpaid internship, underpaid labour, underemployment, and/or insecure employment, even mass unemployment. This

paper will consider the ethics of cultural heritage management under legal, contractual, ethical, political and financial compulsion. Simultaneously, whether within the legislative process, through public debate or in the streets, cultural heritage workers and concerned communities have organised and resisted. This paper will explore how archaeologists are resisting their own precarity and its threat to cultural heritage sites and services.

### **Japanese Archaeology and the Market Economy: Resistance through “Community Archaeology”**

**Nicolás Zorzin** (Kyushu University, Fukuoka)

In modern Japan, the relationship between archaeology and the presently dominant neoliberal political economy is now giving rise to ethical issues faced primarily by archaeologists (Ikawa-Smith 2011, Okamura 2013). In this presentation, I illustrate the difficulties which may have arisen from these relations, and explore other avenues of reflection within the implementation of a ‘community archaeology’. The results of my investigation are based on interviews of a sample of Japanese archaeologists and community members involved in heritage management, and were conducted in 2013 across the archipelago. After forty years of neoliberal reform, Japanese archaeology is surprisingly resisting conversion into a market economy and is still mostly operating within a state structure. However, even though radical transformation has not occurred, some changes have still occurred in Japan through: 1) privatisation of archaeology in hyper-urbanised areas; and 2) internal reform of the existing state sector, mimicking the rules of efficiency and competitiveness. This situation sparked off a self-reflective period for Japanese archaeologists, and marked the renewal of a resistance within local communities reclaiming ownership of the past, and participation in its discovery, elaboration, and utilization in close collaboration with archaeologists. I will illustrate these phenomena through cases of ‘community archaeology’ in Japan.

### **Crowdsourcing/Funding Heritage: Public Engagement or Digital Labour?**

**Lorna Richardson** (Institute of Archaeology University of London, London)

The rise of austerity Britain has seen significant funding cuts for archaeological services, including Local Authority planning departments, community archaeology services and English Heritage. This has been met with rise in popularity of crowd funding and crowd sourcing, as methods of engaging with the public, situating communities around local heritage issues, as well as launching an innovative response to sources of funding for archaeological projects. This paper will examine the use of crowd sourcing and crowd funding from a critical Internet Studies perspective, and discuss the ethics of digital labour, philanthropy and the inherent exclusivity of the use of these online technologies for public archaeology.

### **Anti-Social Media?: Ethics and the Usage of Social Media in Museums**

**Dominic Walker** (University of Cambridge, Cambridge)

Both public archaeology and museology have recognised the importance of involving or collaborating with extra-disciplinary publics. It has been realised that the various benefits of a discipline should not accrue only for the centre, but must also be shared with other communities. In museums especially, the widespread adoption of social media over the last few years has been considered a means of implementing some of the tenets of collaborative archaeology and museology, including: reflexivity, socio-political responsiveness, the co-construction of authority, and the inclusion of previously marginalised communities. However, there has seemingly been a lack of thorough engagement with critical perspectives emerging from internet and new media studies, participation studies and the sociology of expertise. This paper argues that, as a result, in many cases museums may unwittingly stray into unethical practice in their usage of social media, thus challenging the laudable aims many aim for. This paper argues for the importance of ethical awareness, particularly the recognition of voice and difference, and engagement with the problem of appropriation.

### **Ethical Approaches to Community Engagement in Rural Areas**

**Paul Belford** (Clwyd-Powys Arch. Trust, Welshpool)

This paper examines the difficulties inherent in delivering public archaeology projects and programmes in rural areas. The two principal concerns are the low population density, and the remoteness of rural communities from the bases of the archaeological organisations undertaking the work. Both factors make sustainable long-term engagement difficult to achieve. Drawing on recent work in mid-Wales and elsewhere, this paper will suggest a number of alternative approaches to delivering community archaeology projects in rural areas.

### **Why Collaboration is Best: Using Public Value to Prioritise Action**

**Ellie Graham** (Scottish Coastal Archaeology and the Problem of Erosion-SCAPE, Saint Andrews), **Joanna Hambly** (Scottish Coastal Archaeology and the Problem of Erosion-SCAPE, Saint Andrews), **Tom Dawson** (St Andrews University, Saint Andrews)

The SCAPE Trust has participated in numerous community projects since 2000 and has visited hundreds of other projects in this time. We have seen expectations raised, hopes dashed and groups left abandoned without support. It has been a

long journey, but we have learned important lessons. Heritage professionals may consider that community work is important, but do we ever question whether the sites we value are the ones that interest communities? Does the public agree with professional assessments of importance? Do we undertake engagement activities to reinforce the importance of archaeology to society rather than reflecting that importance? Do we forget that a citizen archaeologist's motivation may be very different to our own? A successful and sustainable public archaeology project must consider the community's views and values. Our approach is to build strong working relationships with local groups and involve them in all aspects of the project. We ask communities to select locally-valued sites that are threatened, and work collaboratively with them to incorporate their ambitions and desires into the project. This focusses limited resources for dealing with sites at risk to those places that are locally valued, engendering a sense of ownership and maximising the sustainability of our projects.

### **Legacy and Honesty in Community Archaeology**

**Alice Forward** (Cardiff University, Cardiff)

The increase in funding for community archaeology projects in the UK has provided the means by which the heritage profession has been able to develop projects to widen access to archaeology. In Wales, community archaeology has recently been placed at the heart of heritage. The majority of heritage organisation in Wales are government funded, meaning that government policy influences the direction of many of the community archaeology projects. Issues of widening access to heritage and encouraging greater participation are priorities in the development stage for many projects. As a result, a high proportion of the project work has been carried out in areas of social exclusion and what have been termed 'hard to reach' communities. The projects have, in general, been successful and the reaction to them positive, but with the Council for British Archaeology funded traineeships coming to an end, significant issues of legacy need to be properly addressed. This paper, drawing on my own experiences of a placement with Amgueddfa Cymru – National Museum Wales, will discuss these issues and consider the responsibility to maintain projects established during the trainee placements regardless of the absence of additional funding.

### **Community Archaeology in Barcelona: A New Way of Doing Archaeology**

**Margarita Díaz-Andreu** (Universidad de Barcelona, Barcelona), **Juan Francisco Gibaja Bao** (Institut Milà i Fontanals - Consejo Superior de Investigaciones Científicas, Madrid)

Community archaeology is gaining momentum in the city of Barcelona, although the number of projects is still low. Some of these projects function in the old quarter of Barcelona whereas others are based in the outskirts of the city, both areas sharing a high occupation by recently settled migrant communities. Some of these projects focus on school children whereas others are attempting to reach youngsters and even the whole of the community. Some of the archaeologists behind these initiatives work as commercial archaeologists and others are based in museums, research institutes and recently also universities. The aim of this paper will be, first, to discuss the challenges regarding ethical issues and the practical difficulties these projects have encountered. Secondly, we would like to argue that ignoring completely community archaeology also implies ethical issues that archaeologists should confront.

### **Castle Ditches, Horsemen's Memories and Knitted Houses: Cambridge Community Heritage Projects in 2013**

**Carenza Lewis** (University of Cambridge, Cambridge)

After Michael Wood's 'Great British Story' history series was broadcast in 2012 in the summer of the London Olympics and the Queen's Jubilee, the BBC, the Heritage Lottery Fund and the Arts and Humanities Research Council hatched an idea to fund community groups inspired by the series to carry out their own 'dream' heritage projects, focussed on what was important to them and their communities. Hundreds of groups applied across the UK, and this paper will give an account of how a Cambridge University team of archaeologists and historians helped 25 groups across eastern England, all with different aims, ideas and prior experience, run a vastly diverse range of projects involving thousands of volunteers. As a scheme part-funded by a major UK research council, this paper will consider the lessons this has for the way in which universities and heritage professionals could collaborate more effectively with wider publics to bridge the divide which so often exists between 'research' and 'community' to the benefit of everyone.

## **POSTERS**

### **Making Dead Bodies Public. Ethical Aspects on Presenting Osteological Material**

**Ulf Celin** (Societas Archaeologica Upsaliensis, Uppsala)

Rescue archaeology in Sweden often has a mandate from the County Administrative Board to make the excavation accessible for the public to visit. This has raised questions on how to tackle the ethical aspects of showing inter alia skeletal materials/graves, and how we as archaeologists/osteologists have to adjust when we exhume this type of material from. Sweden is a mainly secular/protestant society where most people have little or no direct contact with the dead in their daily life. Still, the reality of human remains can bring forth very strong emotions in the public that we are not always prepared to

deal with. How do we discuss why we have to excavate the graves? How do we prepare the archaeologists in the field? Are there ethical considerations in the use of internet and social media to spread photos? In order to adjust to the new goals of public archaeology we also sometimes leave bones in the ground longer than necessary. The sites are often open and there are no guards watching the graves. Leaving the bones in the graves longer than necessary exposes the bones to sun, rain and drought. Can a mandate for public archaeology be harmful for qualitative excavation?

### **How to Avoid the Opportunism and Disinformation of Media**

**Çiğdem Özkan Aygün** (Istanbul Technical University-ITU, Department of Fine Arts, Istanbul)

This paper focuses on the specific experiences showing how the media disinform the society on speculative issues and asks the questions of What can we do to avoid such tendencies? How to communicate with media professionals? It is the story of how a scientific research is owned by a non-professional with the help of media campaigns. As professionals we do want to share our findings with the community. What is the way of doing this? Is the media a trustable solution for the communication with public? Cisterns, wells and subterranean galleries under Hagia Sophia has been the scientific research of Istanbul Technical University since 2005. A so called documentary shooter takes the permission from the museum management to make a video in the research area. Since then he takes place in the media as the man who has found out the “unknown enigmatic galleries, bones of the saints etc.” asking financial support for his “incredible research and video project”. Istanbul Technical University sends legal warnings to the “documentarist” and disclaimings to the media but who cares fake information spreads through internet. He even finds place in Dan Brown’s book *Inferno* with the “disclaimed” news at “Hürriyet Daily News”.



### **T02S002 - BARRIERS AND OPPORTUNITIES: OPEN ACCESS AND OPEN DATA IN ARCHAEOLOGY**

**Organizers: Frank Siegmund** (Heinrich Heine Universität Düsseldorf, Düsseldorf), **Julian D. Richards** (University of York, York)

The European Science Foundation and other leading European research-funders have declared their support for the “Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities”: a far-reaching restructuring of scientific publishing in favour of open access will take place before the end of the current decade. In parallel, the infrastructure necessary for open data is being created and the political pressure to use it will increase. Many areas of the humanities in Europe, including archaeology, still find this a difficult step to take. At present, the majority of highly renowned journals continue to be published in the traditional way, and research data are still generally unpublished. At the same time, the early adopters of open access and open data are still battling with the problems of how to implement it in practice. This session will attempt to provide an up-to-date overview of open access and open data. We welcome papers from academics, projects and publishers interested in this issue. Archaeologists need to think one step ahead at this early stage: will the availability of open data change the nature of archaeological research and publication, and will it also impact the ways in which archaeologists engage with wider communities?

### **ORAL PRESENTATIONS**

#### **Introduction to the Session: Open Access and Open Data as Steps towards an Open Archaeology**

**Frank Siegmund** (Heinrich Heine Universität Düsseldorf, Düsseldorf)

Open Access and Open Data have obvious advantages for research. Moreover, scientists who are no longer working directly in research, but are archaeologists in companies, conservation authorities or museums, for example, are provided with the opportunity to again participate more in current research or the academic discussions. At present, the practical implementation of Open Access and Open Data is still dealing with legal, financial and technical problems which need to be solved. But a start has been made and the trend is irreversible. This opening up of information extends far beyond the world of specialists, however, since everyone interested in archaeology benefits from it. Archaeology is graphic and already enjoys a great deal of public interest. It may therefore be expected that the open publications are also seen by non-specialists. This may lead to a new link between the world of archaeological specialists and the public, because the professionalization of archaeology in the course of the 20th century resulted in it distancing itself from this public. This talk would like to encourage people to reflect on the fact that this new opening up of information is not only changing our relationship to the public, but also archaeology itself.

#### **Open Access in Italy: An Overview and a Proposal**

**Valeria Boi** (Professional Archaeologist, Rome), **Anna Maria Marras** (Professional Archaeologist, Trento), **Cetina Santagati** (Department of Architecture of University of Catania, Catania)

This paper explores the current open access possibilities to the scientific documentation of archaeological excavations in Italy. Recent laws, such as D.L. 179/2012, and L. 33/2013 introduced the principles of “open by default” and of “civic ac-

cess right” for public administration data, but there is still a lack in the Italian legislation concerning the open access to archaeological data. This causes uncertainty and conflict between Public Administrations, who hold the scientific report of archaeological excavations in their archives, and professional archaeologists who produce them, and consequently require the safeguard of their own intellectual property rights. The solution proposed by the Ministry for Cultural Assets and Activities and for Tourism of Italy is based on the online publication of scientific summary documents on open access platforms, while bottom-up initiatives started to publish raw data to the web. An experimentation on the Italian open access platforms allowed us to identify barriers and opportunities of the different approaches and to reflect on the possibility of publishing archaeological data, on a public, easy access platform that should guarantee the publication of all data, and should allow to safeguard authors' rights through proper metadata and licenses.

## Old and New Adventures in Open Access

**Doug Rocks-Macqueen** (Landward Research, University of Edinburgh, Edinburgh)

This paper explores the work of the OpenAccessArchaeology.org (OAA) website over the last few years and future plans. A brief history of why the website was set up and its early development will be given. The successes and failures of some of the early initiatives will be examined. These initiatives include: • The creation of a searchable database of OA Archaeology Journals. • A custom search engine to search for OA Archaeology articles. • Multiple web bots to disseminate OA publications on social media platforms. With the very rapid expansion of OA through government mandates like those found in the US and UK the world of publishing has changed dramatically in the last year. Many of the goals that the OAA started out are quickly being reached but new challenges are arising. The rest of the paper will be spent examining the future projects that the website will be looking to undertake.

## “Archäologische Informationen” and Open Journal Systems. Chances and Possibilities of an Open Access Journal

**Alexandra Büttner** (Heidelberg University Library, Heidelberg)

Heidelberg University Library (UL) has been encouraging the Open-Access idea in the field of classical studies, since 2006, with its digital repository “Propylaeum-DOK”. By providing the Open-Source software “Open Journal Systems” (OJS), the UL is now also providing the technical means for publishing and managing online journals. It thereby ensures the hosting of the software and published data, as well as layout adaptations requested by the editors. Furthermore, it offers introductory workshops to OJS in order to support editors with the publication process. Initial experience was gathered in 2013 when, in close cooperation with the editors, the journal “Archäologische Informationen” of the Deutsche Gesellschaft für Ur- und Frühgeschichte (DGUF) was digitized and published. With its 2013 publication the journal became the first in the field of classical studies in Germany to publish in Open Access, along with a printed version and without a moving wall. The cooperation of the DGUF and UL provides an example of sharing the process of data publication in the future, and how tasks can be shared: (1) the supply of high quality essays by academics and (2) the permanent and citeable archiving, cataloguing and distribution of data through a library. The newly developed process places an important emphasis on free access to research data in Open Access.

## Publishing Open Access isn't the End of the Story

**Rachel H. Young** (Maney Publishing, London), **Gaynor Redvers-Mutton** (Maney Publishing, London)

Publishing in an Open Access journal can be perceived as a magic bullet for authors seeking broad readership and citation. In theory open data should enable readers to go beyond the paper and view the source. As the digital journal landscape matures how do authors evaluate their publishing options? How can authors judge the suitability of various OA journals for their article? Will your article get lost in an OA mega-journal, should you publish in something with a more targeted scope? Should data be archived as supplementary material to a journal article or is its proper place in an independent repository? How can you ensure that your paper gets noticed and what tools can you use to promote your article? This presentation will highlight the considerations authors may have in mind when choosing an OA outlet for their article, how they can enhance the likelihood of the article being highlighted by the journal and what tools to use to increase the visibility and citeability of their article.

## Open Data Publication - Requirements, Good Practices, and Benefits

**Guntram Geser** (Salzburg Research, Salzburg)

Surveys on data sharing practices show that across all disciplines most research data is locked away, remains on PCs, storage devices, and restricted access servers. Only some 6-8% of researchers make data openly accessible in a community repository. Thus proper management and the value of the data for re-use by the community are often not considered. The data practices clearly run against what advocates of “open data” would like researchers to do. Currently there are indeed more obstacles than incentives for “open data”, including perceived lack of academic reward, additional effort, concerns



that data might be misused, and more. Yet the obstacles can be overcome by addressing the institutional requirements. They include extension of open access mandates from papers to research data, available trusted data repositories, and making sure that data sharers receive the credit they deserve. Indeed, presenting clear evidence of the benefits of open data publication is crucial. The paper will summarize the current state of “open data” in archaeological and related fields of research, highlight the requirements for progress, and suggest strategies for benefitting from open data publication both on the community and individual levels.

### **Opportunities and Challenges with Open Access and Open Data in the UK**

**Julian D. Richards** (University of York, York)

UK research councils now require researchers to make their data available Open Access, and it is expected that in the next Research Assessment Framework all eligible publications must be Open Access. This paper will assess the implications for archaeology, based on experience in OA publication and data archiving. The e-journal *Internet Archaeology* is currently a hybrid Open Access journal, its business model having evolved in parallel with the growth of the OA movement over the last 15 years. The Archaeology Data Service has provided Open Access to data from the outset. Based on experience with both initiatives this paper will review the challenges faced by organisations seeking to provide Open Access, as well as the potential benefits, and it will review the current state of play in the UK.

### **Open Access of Research Data - The Present and Future Situation in Germany**

**Felix Schäfer** (IANUS c/o Deutsches Archäologisches Institut-DAI Berlin, Berlin), **Maurice Heinrich** (IANUS c/o Deutsches Archäologisches Institut-DAI Berlin, Berlin), **Ortwin Dally** (Deutsches Archäologisches Institut-DAI Rom, Berlin)

This paper will give a discussion of the possibilities to find and re-use primary research data from archaeological disciplines in Germany. The first part will focus on raw data that is relevant for publications and has separately been released under Open Access conditions. Different German and non-German digital archives, online-portals and data-publishers will be examined to find out how widespread this practise is in this specific community and how much data is available at present. Comparisons with other disciplines and practices in other countries will contrast the results. The second part will present the IANUS-project which aims to establish a national, domain specific technical infrastructure, workflows and online-interface for the professional archiving and free dissemination of raw data. The talk will present the current status of the project, its aims and the obstacles in promoting the ideas of Open Access and reusable data in a heterogeneous and sometimes conservative discipline.

### **Barriers and Opportunities for Linked Open Data Use in Archaeology and Cultural Heritage**

**Keith May** (English Heritage, London), **Ceri Binding** (University of South Wales, South Wales), **Doug Tudhope** (University of South Wales, South Wales)

Archaeologists, along with cultural heritage and memory institutions generally are seeking to open up databases, and repositories of digitized items, previously confined to specialists, to a wider academic and general audience. But to do so most effectively requires joined up infrastructures and tools to help formulate and refine searches for those navigating through the information space of concepts used to describe different collections. Different people and domains use different words for the same concept or may employ slightly different concepts and this ‘vocabulary problem’ is a barrier to broadening scholarly, let alone more general access. Practical work in tackling such issues has used the W3C SKOS standard for incorporating controlled terminologies and the CIDOC CRM in the STAR, STELLAR and SENESCHAL projects (<http://hypermedia.research.southwales.ac.uk/kos/SENESCHAL/>), leading to SKOS based versions of national cultural heritage domain controlled vocabularies and the publishing of these as Linked Open Data via the HeritageData.org web site (<http://www.heritagedata.org/blog/>) This paper will discuss key issues and experiences from developing some current Linked Open Data resources for cultural heritage and consider important opportunities for the development of such LOD resources for the future.

### **Think Big about Data: Archaeology and the Big Data Challenge**

**Gabriele Gattiglia** (University of Pisa, Pisa)

Usually defined as high volume, high velocity, and/or high variety data, Big Data permit to learn things that we could not comprehend using smaller amounts of data, thanks to software, hardware and algorithms empowerment. This requires a novel archaeological approach: to use a lot of data; to accept messiness; to move from causation to correlation. Do the imperfections of archaeological data preclude this approach? or are archaeological data perfect because they are messy and difficult to structure? Normally archaeology deals with the complexity of large datasets, fragmentary data, data from a variety of sources and disciplines, rarely in the same format or scale. If so, is archaeology ready to work more with data-driven research, to accept predictive and probabilistic techniques? Big Data inform, rather than explain, expose the pattern for archaeological interpretation, they are a resource and a tool: data mining, sentiment analysis, data visualisations, quan-



titative methods, image processing etc. can help to understand complex archaeological information. However seductive Big Data appear, we can't ignore the problems such as the risk of considering data=truth, and the intellectual property and ethical issues. Rather, we must adopt this technology with an appreciation of its power but also of its limitations.

### **Are We there yet? The Open Access Journal “Etopoi. Journal for Ancient Studies”**

**Gisela Eberhardt** (Freie Universität Berlin / Exzellenzcluster Topoi, Berlin)

By now, numerous European universities have established particular Open Access (OA) policy statements and host their own online repositories. Particularly the humanities, however, meet OA with scepticism. Many scholars seem to accept and understand the benefits of OA but, when it comes to their own scientific output, they still have strong reservations mainly against the so called 'gold' OA. In 2011, the Berlin-based Excellencecluster 'Topoi - The Formation and Transformation of Space and Knowledge in Ancient Civilizations' launched its own OA e-journal “eTopoi. Journal for Ancient Studies.” The cluster 'Topoi' is a scientific network with over 200 scholars as well as visiting fellows and post-graduates dedicated to ancient studies. “eTopoi's” main goal was to offer cluster members and associates the opportunity to publish their latest research results and conference proceedings more straightforwardly. In my paper I will describe the process of establishing the OA e-journal “eTopoi” and the problems attached to it. By doing so I will focus on three closely connected aspects: acceptance by authors, quality assurance measures (as peer review), and public awareness. Finally, future OA endeavours for 2014 shall be introduced and discussed.

### **We're All Prosumers Now? Sociality and Open Access Archaeology**

**Sarah Colley** (University of Leicester and SMC Research & Consultancy, Leicester)

This paper examines issues raised by open access philosophies for the political economy of archaeology and cultural heritage management. It uses examples from my involvement in several Australian-based open access archaeology projects (implemented in Australia, the UK and elsewhere) and my research into digital technologies and archaeological communication. Making archaeological data, information and/or content openly accessible online raises issues about the ascribed and intrinsic values of different kinds of archaeological work depending on who is involved, project aims and funding and business models that support them. Following e.g. Fuchs (2014, *Social Media. A Critical Introduction*, Sage) I will discuss different kinds of 'sociality' in archaeology (e.g. analysis/cognition, work-related collaboration, information exchange, community building and professional and social networking) which are variably afforded by open access technologies and policies and implications for the future of archaeology and cultural heritage practice.

### **Archaeological Training in an Open Access World: Lessons from the Reward Project (Researchers Using Existing Workflows to Archive Research Data)**

**Anastasia Sakellariadi** (Institute of Archaeology, UCL, London), **Brian Hole** (Institute of Archaeology, UCL, and Ubiquity Press, London)

This presentation focuses on archaeologists and other heritage practitioners and researchers and the implications of the trend towards Open Archaeology for their working practices: the conception, planning, implementation, analysis, publication and long-term preservation of research data and outcomes. The main argument is that one of the barriers to Open Archaeology is the way archaeologists are trained, but that a fine tuning of established workflows and practices can overcome this and result in open practices. This argument is supported by evidence collected and analysed for the REWARD project (Researchers using Existing Workflows to Archive Research Data, October 2011 - March 2012, JISC, UCL Library Services, UCL Institute of Archaeology and Ubiquity Press). The presentation discusses the results of interviews with researchers in archaeology and cultural heritage on data creation, use, documentation, protection, storage, assessment, ownership, preservation, re-use, licensing, sharing, management (as a distinct stage in research), citation and other requirements (e.g. ethics and data protection). The project also included a survey of attitudes to data sharing at the UCL Institute of Archaeology, and observations regarding the Data Management and Planning tool from the Digital Curation Centre (UK). The presentation thus identifies barriers and opportunities for Open Archaeology from the perspective of practitioners.

### **Looking into the Consumption of Archaeological Open Data: The Case of the Portable Antiquities Scheme**

**Chiara Bonacchi** (UCL Institute of Archaeology, London), **Daniel Pett** (The British Museum, London)

Through the case study of the Portable Antiquities Scheme (PAS), this paper will discuss the value that open archaeological data can have for researcher communities and the wider public. PAS is a major project funded by the UK government to encourage the voluntary recording of archaeological objects found by members of the public in England and Wales. Finds are recorded in a database hosted at the British Museum, and records can be accessed online, free of charge, by academic researchers or interested archaeological enthusiasts. This paper will present the findings of a pilot study aiming to understand the value of the archaeological data that has been produced and openly shared through the years thanks to the Portable Antiquities Scheme. We will answer questions such as: what data is accessed, by whom and why? Where is this

data reused and how is it rehashed? Based on these insights, we will reflect on the potential impact of long-term open data and open access policies in archaeology.

### **The Geographic Archaeological Information System of Rome between Intellectual Property Rights and Privacy Protection Law**

**Mirella Serlorenzi** (Superintendency of Archeology of Rome, Rome), **Ilaria Jovine** (Superintendency of Archeology of Rome, Rome), **Valeria Boi** (Professional Archaeologist, Rome), **Milena Stacca** (Professional Archaeologist, Rome)

The Geographic Archaeological Information System of Rome (SITAR) is a project of Ministry for Cultural Assets and Activities and for Tourism of Italy, which aims to open archaeological heritage data of Rome urban area to the general public (<http://sitar.archeorama.beniculturali.it/>). SITAR webGIS portal allows the online consultation of archaeological data: for every record in the database the topographic location is provided, together with a descriptive sheet containing administrative information (type of survey, commissioning body, executing company) and scientific ones (type/function, chronology, description, etc.). The information provided correspond to a “minimum level of knowledge”, which are adequate to allow an aware re-use of data for aims of research, conservation and urban planning. At the moment, we are working to make also raw data (i.e. original documents stored in the archives) accessible to general public, under licences which allow the re-use of information and the right quote of authorship rights. Our purpose is to conciliate both intellectual property of scientific reports and privacy protection, aspects which have not found a clear solution in Italian law yet.

### **linkedARC.net: Accessing the Benefits of Open Data Practice within Archaeology**

**Frank Lynam** (Trinity College Dublin, Dublin)

Open Access and Open Data are concepts that most archaeologists working today will have encountered at one point or another. Increasingly, they appear as prerequisites on project funding applications and their perceived benefits are considered newsworthy enough to be discussed by the mainstream media. In essence they preach a very simple message: that data should be allowed to flow easily between agents working within a single knowledge field and at a broader level between the fields themselves. As with many fundamental concepts, the implications of adoption are less clear-cut. It is one thing to say that you are for Open Access but quite another entirely to fully realise this ambition in your daily archaeological work. This paper focuses on the technical aspects of Open Access adherence by describing the linkedARC.net project, a Linked Open Data RDF data store that has been recently developed to provide a solution for archaeological projects that wish to publish their data to the Semantic Web. The linkedARC.net architecture will be presented both from the point of view of the developer and from the perspective of the consumer of the service.

## **POSTERS**

### **Four Years of Open Access Public Archaeology**

**Jaime Almansa-Sánchez** (AP: Online Journal in Public Archaeology, Madrid), **Elena Papagiannopoulou** (AP: Online Journal in Public Archaeology, Madrid), **Dominic Walker** (AP: Online Journal in Public Archaeology, Madrid), **Amanda Erickson-Harvey** (AP: Online Journal in Public Archaeology, Madrid), **Kaitlyn Goss** (AP: Online Journal in Public Archaeology, Madrid), **Alexandra Ion** (AP: Online Journal in Public Archaeology, Madrid), **Alejandra Galmés** (AP: Online Journal in Public Archaeology, Madrid)

When AP: Online Journal in Public Archaeology first started four years ago, we wanted to create, edit and publish a peer reviewed, open access journal that would be freely available to our readers and at no cost for researchers interested in publishing with us. In order to achieve that, we had to run it on a voluntary basis, but that did not free us from certain expenses. Lack of funding continues to be an issue, but the journal still goes on and grows. In an academic world where rankings and indexes still define quality and prestige, keeping out of the norm is considered a handicap, but at the same time challenges the status quo of academic publishing.

### **Application of Information and Communication Technologies for Archaeological Research**

**Michael Polczynski** (Georgetown University, Washington), **Mark Polczynski** (Marquette University, Milwaukee)

Over the past several decades, analytical technologies such as C14 dating have revolutionized archaeological research. Continuing advances in computer and communication related technologies are providing new ways to augment this research. The purpose of this poster session is to provide an overview of five technologies that are extending the breadth and depth of archaeological research. Geographical information systems (GIS) allow access to and visualization of geo-referenced data. Mobile data acquisition enables real-time access to archaeological data being acquired on-site. Wiki collaboration provides a wide audience with the ability to review findings and even contribute to the data analysis process. Social network analysis and agent-based modelling allow data to be used to drive models of human behaviour. Data mining and machine learning can be applied to detect hidden patterns in the “big data” generated by the other five technologies.

While each of these technologies can be used independently to enhance research, application of these technologies as an integrated set provides two primary advantages: 1) collaborative generation and analysis of massive databases of archaeological information can leverage scarce human, material, and financial resources; 2) data-driven development and verification of theoretical models of human behavior can be used to augment orthodox research methodology.

### Archaeological Map of Crimea. Special Case and Common Problems

**Sergey Smekalov** (Tula Pedagogical University named after Leo Tolstoy, Tula), **Victor Zubarev** (Tula Pedagogical University named after Leo Tolstoy, Tula), **Sergey Lantsov** (Department of Classical Archaeology in Crimean Branch of the Institute of Archaeology, Simferopol)

Creating the archaeological map of Crimea is a long-standing theme of works and is carried out now within the project “Structural and spatial study of the monuments of archaeological research as a paradigm of the history of a particular region” at the Tula State Pedagogical University. This map combines data from research in the 19th-20th centuries and modern results. The combination of the data is not difficult technically, the problem lies in its reliability and completeness. Old information about archaeological sites in many cases does not have an exact spatial reference, and to re-discover the “old” monuments is not possible. New results are presented often in scientific reports only, but not printed, and often these reports are difficult to find. A separate problem is the degree of completeness of the archaeological study of the area. In our view, it is important not only to indicate the existing archaeological sites, but also to designate the territory “free” from archaeological sites, which can be used for economic activities without the risk of a destruction of archaeological sites. This requires a systematic study of the planned area. Such work is currently under way, but it is very time consuming.

### Shipwreck Heritage: Digitizing and Opening Access to Maritime History Sources

**Maili Roio** (Estonian National Heritage Board / University of Tartu, Tallinn)

The Wreck Register has been created within the framework of a three-year collaboration project “Shipwreck Heritage: Digitizing and Opening Access to Maritime History Sources”. The database of shipwrecks was created within the Estonian National Register of Cultural Monuments, containing archived materials on shipwrecks and data about wrecks discovered as a result of underwater archaeological fieldwork. Information in register is both in Estonian and English, as shipwrecks constitute international heritage and relate to the history of several countries. Archival materials were digitised in order to provide access to the past to all those interested. In addition to the facilitation of access, short summaries of the shipwreck stories were recorded in the shipwreck register so as to make the data more easily understandable. Shipwreck materials contained in archives are valuable not just for researchers but, because of their versatility, are of interest to a wider audience, as well. Therefore, the project was intended to provide the general public with a wide range of opportunities to examine the rich underwater cultural heritage of the Baltic Sea and the archival heritage stored in historical institutions and thus increase the awareness of people of the importance of protecting and preserving underwater heritage.



## T02S003 - NEW DATA ON SOCIAL COMPLEXITY IN THE BALKANS AND AROUND: PREHISTORIC SOCIETIES FROM THE VTH MILLENNIUM BC

**Organizers:** **Laurence Manolakis** (Trajectoires, CNRS, Nanterre Cedex), **Vladimir Slavčev** (Dept. of Prehistory, Varna Historical Museum, Varna), **Olivier Weller** (Trajectoires, CNRS, Nanterre Cedex)

After the centuries of neolithic being, during 5th millennium BC the Balkan peninsula and the areas around show numerous evidences of complex social and economical organisation. These significant changes have radically changed the way of life forever. The session would like to contribute to a better and finer understanding of the different levels of this social complexity during this period. It will focus on new studies about exploitation of natural resources (i.e. gold, copper, flint, graphite, marble, obsidian, shells, salt...) and craft production with new/specific organisations, settlement patterns (enclosures, tells, protocities, necropoleis, etc.), exchange networks at long distance and control of the networks, funerary practices and symbols of prestige. We invite the participants to present new data, new crossing studies and new interpretations/scenarios about the complexity of the social and technical organisation of “long-time-neolithized” societies. Any contribution on the understanding of reasons, essence and results of the social processes during 5th millennium are warmly welcome.

### ORAL PRESENTATIONS

#### A Southern View: Specialization in the Chipped Stone Industry of Uğurlu (Gökçeada Island, Turkey)

**Denis Guilbeau** (UMR7055, Nanterre)

The fifth millennium is still an unknown period in the northern and western part of Anatolia. At the interface between this region and the Balkans, Uğurlu-Zeytinlik (Gökçeada island) is the only large-scale excavation for this period for the entire area. The excavated structures have yielded more than a thousand chipped stones yet. The lithic industry is very different

from the ones we find in contemporary sites in the Balkans: there is no blade or blade fragment made by lever pressure or standing pressure in pre-Balkans flint (Aptian formations). Conversely, we find a few chipped stones in obsidian from Melos and Cappadocia. The presence of rare “Karanovo blades” attest nevertheless of relations with the Northern regions. At this time, as in previous periods, the presence of other pressure blade productions and the absence of evidence related to their débitage suggest that the site was also part of other distribution networks for specialized productions. However, compared to the levels of the end of the 7th and of the 6th millennium, these blades are much less abundant. This suggests a decrease in the specialization in chipped stones industries during this period.

### **From Starčevo to Vinča: Technological Developments in Ceramic Production**

**Michela Spataro** (The British Museum, London)

The transition in the central Balkans between the early Neolithic Starčevo-Kris-Körös and the middle Neolithic Vinča cultures witnessed several changes; the appearance of the earliest metalwork, sophisticated black-burnished pottery, surface houses and tell sites all suggest a shift to a more complex society. We may expect such changes to be reflected in increasing craft specialisation and technological sophistication in pottery production. The author will present 3 case studies of ceramic assemblages from sites in Serbia and Romania with both Starčevo (6th millennium cal BC) and Vinča (5th millennium) occupations, noting differences and similarities in the selection of raw materials and firing temperatures. Minero-petrographic and geochemical analyses suggest that the temper used in the early Neolithic was not dictated by functional requirements, but by long-term technological traditions which reflect persistent group identities and cultural boundaries. By contrast, Vinča pottery production is notable for the range of raw materials and firing conditions employed. The technological diversification does not necessarily reflect functional considerations, and at each site pottery seems to have been manufactured differently. Although some products may have been more advanced than in the Starčevo period, it is still unclear whether pottery technology in general became more specialised.

### **The Earliest Metallurgy in Eurasia: New Results from the Vinča Culture Sites in Serbia**

**Miljana Radivojević** (University College London, Institute of Archaeology, London), **Benjamin Roberts** (Durham University, Durham), **Thilo Rehren** (UCL Qatar, Doha), **Julka Kuzmanović-Cvetković** (Museum of Toplica, Prokuplje), **Savo Derikonjić** (Homeland Museum of Priboj, Priboj), **Miroslav Marić** (Institute for Balkan Studies, Serbian Academy of Sciences and Arts, Belgrade), **Peter Thomas** (German Mining Museum, Bochum), **Fabian Schapals** (German Mining Museum, Bochum), **Jugoslav Pendić** (Faculty of Philosophy, University of Belgrade, Belgrade), **Thomas Stöllner** (German Mining Museum, Bochum), **Knut Rassmann** (Roman-German Commission, Frankfurt), **Patrick Mertl** (Roman-German Commission, Frankfurt), **Kai Radloff** (Roman-German Commission, Frankfurt), **Aleksandar Jablanović** (Faculty of Philosophy, University of Belgrade, Belgrade), **Neda Mirković-Marić** (Faculty of Philosophy, University of Belgrade, Belgrade), **Silvia Amicone** (University College London, Institute of Archaeology, London), **Dragana Filipović** (Oxford University, Oxford), **David Orton** (University College London, Institute of Archaeology, London), **Elmira Ibragimova** (State History Museum, Moscow)

This paper presents the preliminary results from the excavation, geophysical survey and post-excavation analyses at the early to mid 5th millennium BC Vinča culture sites of Belovode, Pločnik and Jarmovac in Serbia. These sites were investigated as part of a broader collaboration between British, Serbian and German institutions to understand the emergence of metallurgy in the Balkans during the 6th-5th millennia BC. The collaboration builds upon earlier research at the sites which yielded the earliest known evidence for copper smelting, at c. 5000 BC at Belovode (Radivojević et al. 2010) and the earliest tin-bronze, at c. 4650 BC at Pločnik (Radivojević et al. 2013). We focus on metallurgy in its broader technological, social and environmental context and discuss the concept of social complexity within and beyond the Vinča culture phenomenon in the Balkans.

### **Pluridisciplinary Study Related to the Copper Daggers of the Cucuteni Culture**

**Ion Sandu** (“Alexandru Ioan Cuza” University of Iași - “Arheoinvest” Platform, Iași), **Gheorghe Dumitroaia** (History and Archaeology Museum of Piatra-Neamt - International Research Center of Cucuteni Culture, Piatra-Neamt), **Constantin Preoteasa** (History and Archaeology Museum of Piatra-Neamt - International Research Center of Cucuteni Culture, Piatra-Neamt), **Ilie Cojocariu** (“Bucovina” Museum of Suceava, Suceava), **Otilia Mircea** (History Museum of Romania, Romania), **Viorica Vasilache** (“Alexandru Ioan Cuza” University of Iași - “Arheoinvest” Platform, Iași)

In this paper we consider the multidisciplinary analysis of a special category of prestigious artifacts of Cucuteni Culture, a small number of objects, namely copper daggers. Of the fourteen pieces found so far in the Cucuteni settlements, seven come from secure stratigraphic contexts that allow their assignment to certain Cucuteni phases, A and B, and the other seven come from less known contexts, which raise questions about their cultural and chronological affiliation. Eleven other daggers, which were referred to as analogs are associated sometimes cautiously, other times with more safety, to some cultural backgrounds partially contemporary or prior to Cucuteni culture, respectively Sălcuța IV - Băile Herculane - Cheile

Turzii - Hunyadihalom, Baden, Coțofeni and Horodiștea-Erbiceni-Foltești. The typological-formal differences allow the classification of the artifacts in several types and variants. Some of the pieces are analyzed, their chemical composition being highlighted, as well as the working technology, their use or the subsequent processing.

### **The Emergence of Early Gold Metallurgy - Reinvestigating the Varna Gold**

**Verena Leusch** (Curt-Engelhorn-Centre for Archaeometry, Mannheim), **Barbara Armbruster** (Université de Toulouse II, Toulouse), **Ernst Pernicka** (Curt-Engelhorn-Centre for Archaeometry, Mannheim)

The cemetery of Varna I (ca. 4550-4450 BCE) still is the earliest evidence of a strongly specialised and developed gold metallurgy in combination with an extraordinary, yet unknown level of social differentiation. Since 2009 intensive reinvestigation of the grave assemblages has been going on that shed new light on the phenomenon of the earliest gold industry and its impact on society. In this attempt extensive analytical work was conducted to provide the empirical basis for the reconstruction of the so-called chaîne opératoire of gold during the Late Chalcolithic period within the KGK (Kodžadermen-Gumelnița-Karanovo) VI cultural complex in the west-pontic region. This paper focusses on the new analytical results and their discussion within their specific cultural historical framework. As such, production techniques and the chemical classification of the gold objects have been reinvestigated and evaluated. Additionally to the study of the gold artefacts placer gold occurrences in eastern Bulgaria were prospected to approach the search for possible chalcolithic gold resources.

### **Evidence for Jewellery Making in a Late 5th millennium Household at Dikili Tash (Northern Greece): Local Production and Long-Distance Exchanges**

**Céline Choquenot** (INRAP, Châlons-en-Champagne), **Pascal Darcque** (CNRS, UMR7041, Nanterre), **Haïdo Koukouli-Chryssanthaki** (Archaeological Society of Athens, Kavala), **Dimitra Malamidou** (Ministry of Culture, Kavala), **Zoï Tsirtsoni** (CNRS, UMR 7041, Nanterre)

The last excavations (2012-2013) at the Neolithic tell of Dikili Tash have put into light a large assemblage with more than 1500 jewellery pieces inside a building destroyed by fire towards the end of the 5th millennium BC. From raw materials to finished artifacts (metal, stone, shell and clay beads, shell rings, tooth pendants, etc.), different stages of production were represented. The variety of types and the homogeneity in the making of each type prove a well-organized production. The raw materials indicate in many cases a local supply, especially in the case of the Spondylus Gaedropus shell. Rings made from this particular shell, as well as some bead forms (for example discoid or button-like), are found in several regions to the north, suggesting a long distance jewellery export. On the other hand, presence of gold beads might indicate a bilateral trade with those northern regions, although a local/regional supply cannot be excluded. This new evidence confirms the complex organization of the Neolithic society, in which large-scale jewellery production is well integrated, as part of a larger exchange network with the Balkan societies.

### **Lithic Industry at Pietrele, Romania**

**Ivan Gatsov** (New Bulgarian University, Sofia), **Petranka Nedelčeva** (New Bulgarian University, Sofia)

This paper discusses an interdisciplinary study concerning the techno-typological characteristics of the blade production, and the examination of the system of raw material procurement and supply in the area of the Lower Danube. The results of this study are according to the investigation of Late Chalcolithic – Final Gumelnița assemblages obtained at Pietrele Măgura Gorgana, Romania: tell-sites and flat-settlement. An overview of the chipped stone industry, investigated between 2003 and 2012 from Pietrele will be presented. The study of the lithics throughout the sequence of settlement has allowed characterizing the different techniques and different methods of tool production within the lithic blade technology. Which stands as a prove that the technological stability during of second half of 5 mill BC has been established. This phenomenon affected the flint procurement strategies, the mode of detachment, retouching techniques, and the composition of the “tool kit” and their use.

### **Ressources Lithiques et Territoires de Production au 5e mill. BC en Grèce du Nord**

**Georgia Kourtessi-Philippakis** (University of Athens, Athens)

Les études lithiques en Grèce du Nord sont un domaine de recherche qui a connu un développement relativement récent. Les sites majeurs du 5e millénaire B. C. ont été fouillés systématiquement à partir de la décennie 1960 et les premières publications autonomes ont vu le jour beaucoup plus tard. L'objectif de cette communication est de présenter les principaux résultats des recherches actuelles entreprises par l'auteur et d'examiner la répartition des ressources lithiques dans le Nord égéen et leur implication dans la production et les choix techniques. L'originalité de la démarche repose sur l'axe géographique choisi à l'échelle du Nord égéen, à savoir l'axe Est-Ouest, qui permet d'envisager la problématique posée dans le cadre des unités géographiques relativement cloisonnées (île de Thasos, bassin de Drama, bassin de Kozani, région lacustre de Kastoria). Cet angle d'approche nous a fourni des résultats qui permettent de compléter l'image livrée jusqu'ici traditionnellement par l'examen des données archéologiques sur l'axe Nord-Sud suivant les grandes voies fluviales qui relient les Balkans au littoral égéen.



### Could the Copper Objects be Considered as a Prestige?

**Radmila Balaban** (Faculty of Philosophy, University of Belgrade, Belgrade)

The expressions “prestige, luxury and exotic” goods are widespread in the archaeological literature and usually refer to those objects that are made from raw materials which sources are far away from the site where the artifacts were found. It is commonly accepted that the possession of exotic goods was limited to a certain number of people in the settlement, and the possession of those goods emphasized social differences among the members of the community. For the late Neolithic in the central Balkan the listed prestige goods are made of various types of shells and stones. However, one more category could be identified as the prestige objects made of copper (weapons, tools, jewelry). These objects will be used in this paper in order to re-examine their role in the interpretations of social stratifications of the late Neolithic society. It is necessary to note that the interpretations of copper object usage change depending on the period in which they were used. The low amount of those objects during the Neolithic is interpreted as prestige, but in the Eneolithic, because of the increased usage of copper, this material became the common raw material for producing of various objects for everyday usage.

### A mid-5th millennium BC Potter's Workshop in the Settlement Near Suvorovo, Varna District, Bulgaria

**Vladimir Slavčev** (Varna Regional Museum of History, Varna)

The settlement in the Koriata locality near the town of Suvorovo, Bulgaria, was excavated on the area over 1000 sq.m before 2010. Parts of eight dwellings and a garbage pit were found. All of them dated back to the Middle Copper Age (mid-5th millennium BC). In 2010 a geomagnetic research of the area was done. At least ten more burnt dwellings were documented. In next three years one of them was partially excavated. It consists of three rooms. Each one of them consist a massive oven. The one in the northern room is very solid – with an inner diameter of 1.45 m. Here two podiums made of clay were found also. Because of the lack of the living space, the large size of the ovens, as well as the huge number of the vessels in this dwelling, we believe that the building was a potter's workshop. Perhaps the big oven in the northern room was a pottery kiln. The southwestern room was the storage for the backed production – more than 40 vessels were found there. The place for keeping tools was in the southeastern room, where polishers, some spatulas and tools for stamp- and incised decoration were found.

### Increasing Inequality in the Balkans: Trigger of Change in the 5th millennium BCE

**Johannes Müller** (Institut für Ur- und Frühgeschichte CAU Kiel, Kiel)

The increase of inequalities within Balkan Late Neolithic and Chalcolithic societies was one main trigger for local and regional collapses, both the decrease of tell settlements as well as of the scale of long-distance exchange. Examples from domestic and burial sites are used to verify the model. Excavations of Late Neolithic Okolište in Bosnia revealed social differences in between households and quarters of the settlement: After an increase around 4900 BCE the burning of rich houses changed the social order: the central Butmir site of the Late Neolithic Central Bosnia was transformed into a normal settlement. Obviously, increasing inequality lead to social tension of the formerly segmented society, this ended up with some kind of social levelling again. Analyses of Copper Age cemeteries point to a similar pattern. In consequence significant changes of the 5th millennium are due to social reasons and the development of the complexity within societies.

### The Emergence of Protocities to North East from Balkans: Trypillia Culture

**Nataliia Burdo** (Institute of Archaeology NAS of Ukraine, Kyiv), **Mykhailo Videiko** (Institute of Archaeology NAS of Ukraine, Kyiv)

At the beginning of 5th millennium BC first large settlements - up to 10 and more hectares appeared at area of Trypillia Culture (Trypillia A or Precucuteni III stage). They included few hundreds houses and other objects. Starting from the second half of 5th millennium BC size of settlements increased to 80-150 ha, mainly at the area between Southern Bug and Dniro. Each group of settlements concentrated around such center. From excavations known pottery and other workshops. Processing of metal was developed to. This process developed at moment when Balkan Copper Age came to decline around 4200 BC and continued 500-700 years after 4000 BC. Some features of material culture (interiors of houses, forms and decoration of pottery, figurines) from Trypillia BI-II and BII periods find analogies with Balkans. Probably it means that development of Trypillia Culture protocities was connected not only with some influences, but with spreading of population.

### Intra- and Intersite Analysis during Chalcolithic in Moldavian Plain (Eastern Romania)

**Radu Ștefan Balaur** (Interdisciplinary Research Department - Field Science, Alexandru Ioan Cuza University of Iași, Iași), **Andrei Asăndulesei** (Interdisciplinary Research Department - Field Science, Alexandru Ioan Cuza University of Iași, Iași)

In the study of prehistoric settlements the way how prehistoric communities occupied space, both inside and in the vicinity of the site, remains an important goal if we're talking strictly classical archaeological research. An integrated interdisciplinary



nary approach based on non-invasive investigations (magnetometry, GPR, resistance survey) and GIS tools (spatial analysis, density, visibility, etc..) and joint interpretation of the obtained data can provide valuable clues about this issue. Our work is based on several studies conducted in sites belonging to Cucuteni civilization, in the limits of Moldavian Plain. We obtain information on the spatial distribution of settlements, the density and dynamics of habitation in this area, settlements planimetry, fortification systems, as well as important features of the landscape.

### **What Do the Adornments Tell Us about Social Complexity in Prehistory? The Case of the Sultana-Malu Roșu Site from Romania**

**Monica Mărgărit** (Valahia University of Târgoviște, Târgoviște), **Cătălin Lazăr** (National History Museum of Romania, Bucharest), **Theodor Ignat** (Museum of Bucharest, Bucharest), **Radian Andreescu** (National History Museum of Romania, Bucharest)

The personal adornments in archaeological contexts represent an inexhaustible source of reflection because by means of these objects, we can identify the symbolic behavior of the prehistoric groups, but also they can reflect numerous evidences of complex social and economical organisation. In this sense, we chose to present an ideal archeological situation in the site from Sultana-Malu Roșu (Romania), consisting of two settlements belonging at two different cultural complexes - Boian-Marica- Karanovo V and Kodžadermen-Gumelnița-Karanovo VI (the V millennium B.C.) - that used the same necropolis. Only certain types of adornments were deposited as funeral inventory, especially those processed starting from exotic materials (Spondylus, Dentalium, marble, malachite), maybe symbols of prestige, obtained through exchange networks, especially with the Mediterranean world, while in the settlement are present fundamentally different forms, made out of local raw materials. These exotic raw materials, when they appear in the settlement, are generally about to be recycled, which illustrates their strict management because of the difficulty to acquire them and probably to their special socio-economic or symbolic significance in the Eneolithic communities. This work was supported by two grants of the Romanian National Authority for Scientific Research, CNCS – UEFISCDI, projects number PN-II-RU-TE- 2011-3-0133 and PN-II-ID-PCE-2011-3-1015.

### **Is that the End of the Neolithic as We Know It? Remarks on Recent Evidence from V. mill. BC from NW Anatolia**

**Ali Umut Türkcan** (Anadolu University, Department of Archaeology, Eskişehir)

The evidence from Western Part of Anatolia dating to between 5000 and 4000 BC as Middle Chalcolithic Period is more recognized as smaller, less complex societies, as an unimportant period to some extent. Therefore, the question of what happened in Asia Minor during V. mill. BC. is avoided recently and the discussion focuses mainly on the Early Chalcolithic. Actually, the end of 6.th the millennium seems to have witnessed a cultural break from traditional Neolithic way of life and change in material culture as well as in subsistence as markers of the Middle Chalcolithic Period in Anatolian Plateau. As most of the Middle Chalcolithic settlements are short lived, occasionally changing locations did not develop as easily detectable mounds. The topic will be discussed mainly from Porsuk Culture that has been coined in Orman Fidanlığı excavations as atypical to traditional Anatolian material. Mainly V. mill B.C material showed also affinities with Vinča material and therefore regarded as 'Proto- Vinča' material by its excavator. The new evidence from Kanlıtaş settlement in Eskişehir Area from survey and excavation will be discussed with contemporary settlements in NW Anatolia with special features such as specialized marble bracelet manufacture evidence on the site.

### **Tell Settlements in Southern Romania: The Diversity of the Built Environment**

**Radian Andreescu** (National History Museum of Romania, Bucharest), **Katia Moldoveanu** (National History Museum of Romania, Bucharest)

Field researches revealed that tell settlements are the main form of habitation in the 5th mill. BC in Southern Romania, where a few hundred tell settlements were identified so far. Recent studies investigated the relation between the tell settlements and their surrounding landscape in certain micro-regions. Their results showed a large variety of the landscape in which human communities decided to build their tell settlements, from hilly areas to flood plains. Most of the tell settlements were placed in river valleys, near the terraces and protected by them, with a large visibility towards the floodplain, where the main economic activities were held. This pattern is known especially in Teleorman Valley where researches were carried out on a large scale. Tell settlements are also located on the terraces, with a dominant position in landscape or on islands, but these are exceptions. Researches also revealed that there was a complex interaction between human communities and the natural environment. People not only chose favorable locations for their future settlements but also transformed these places by complex works. A few examples of such works made by human communities in order to construct their future settlements will be presented in this session.

## Shaping Places – Changing Time: Late Neolithic Cultural Dynamics at Polgár-Csőszhalom (Hungary)

**Pál Raczky** (Eötvös Loránd University Institute of Archaeological Sciences, Budapest), **Alexandra Anders** (Eötvös Loránd University Institute of Archaeological Sciences, Budapest)

Polgár-Csőszhalom is a Late Neolithic settlement complex, currently dated by over a hundred AMS measurements. These offer a temporal framework within which the internal spatial dynamics of the site may be evaluated. The locations of houses, pits, wells, working areas, as well as those of graves and features with symbolic significance constitute the spatial setting of this settlement. Using the evidence of these loci at the site, the use-life of the settlement can be phased, each phase characterized by special combinations of loci in relation to relevant spaces. In this presentation, the dynamism of corresponding cultural activities is studied on various levels. The site itself consists of two macro loci: the tell encircled by an enclosure system and a horizontal settlement; additional subdivisions may be made within these two loci at the level of households and further at the level of various activities. To date, the patterning observed in archaeological data suggests a very conscious horizontal and vertical sub-division of features reflecting internal relationships in space and time that can be modelled.

## Long-Time-Neolithized Central Europe in the 5th millennium BC

**Jaroslav Řídký** (Institute of Archaeology CAS Prague, Prague), **Pavel Burgert** (Institute of Archaeology CAS Prague, Prague), **Miroslav Dobeš** (Institute of Archaeology CAS Prague, Prague)

In the first half of the 5th millennium BC, the region of Central Europe is divided into two main cultural complexes of several cultures. The western complex is characterized by pottery decorated by strokes (Stroked pottery culture, etc.) and the eastern complex, known as the Lengyel complex, is characterized by polychromic pottery decoration. The issue of the social complexity in this period has been intensively studied for a long time. However, there is relatively little known about the period of the second half of the 5th millennium BC, connected with the beginning of Eneolithic (in Czech chronology) period. The aim of the paper is to introduce and compare some common characteristics of cultures and cultural complexes of the two halves of the 5th millennium BC, namely the size of settlement sites and their localization, the evidence and types of remains of settlement units, the use of natural resources (raw materials) and possible ways of distribution, technologies and the occurrence of some monumental features of a unified shape. Based on the listed issues, it is possible to create an interpretation model of change of social complexity in the late Neolithic period and early Eneolithic period (in Czech chronology) in Central Europe.

## The Early Phase of the Bregalnica Group in the Eneolithic in Macedonia (FYROM)

**Marina Spirova** (HAEMUS, Center for scientific research and promotion of the culture, Skopje)

The territory of Macedonia (FYROM) was considered to be part of the large Bubanj- Salkutsa-Krivodol complex of the eneolithic period until the 1980s. Excavations undertaken over the past 30 years have distinguished an earlier phase of the eneolithic period in the eastern part of the country, thereby established a better chronology for the Eneolithic in Macedonia. Due to the fact that most of the excavated sites are located near the Bregalnica River, the group has been named the Bregalnica group and two phases of development can be recorded. This paper will focus on the characteristics of the first phase of the group, belonging to the early period of the Eneolithic in Macedonia. New data on the settlements, figurines, pottery typology and decoration techniques will be presented. We aim to contribute to a better understanding of the spiritual life of the eneolithic societies by taking a closer look at the findings from the sanctuary at Spanchevo. The abundance of finds reveals aspects of the ritual practices of the inhabitants. The paper also reflects on the close ties that this group had with neighbouring cultures.

## About the Silicolite Sources in the Carpathian - Danubian Basin

**Cornelia-Magda Lazarovici** (National History Museum of Transylvania Cluj-Napoca, Cluj-Napoca), **Gheorghe Lazarovici** (National History Museum of Transylvania Cluj-Napoca, Cluj-Napoca), **Gerhard Trnka** (Institut für Urgeschichte und Historische Archäologie, Vienna)

The problem of the origin of the raw materials, used by prehistoric communities is of particular interest, because it may help to complete their history. Therefore during 2002-2013 we have investigated several areas known or not in the specific literature (geological and archaeological) that could be exploited by prehistoric communities to achieve chipped lithic industry. Sufficient samples were taken from more than 100 locations in Romania, Bessarabia, Ukraine and Bulgaria, which have demonstrated the use of a wide range of raw materials (flint, silicolite, opal, chalcedony, chert, radiolarit, quartzite etc.). For all investigated areas were recorded all necessary information (GPS location, geographical and geological features); deposits and samples were photographed. Information obtained was added in Databases. The aim of our research is to supplement the present lithotek and databases from the National History Museum of Transylvania Cluj-Napoca, exchanges with other specialized collections (Valahia University, Târgoviște), analysis for determining the deposits characteristics and comparing them with artifacts from prehistoric sites to identify areas exploited by prehistoric communities. In the present study we intend to present some of our research regarding the silicolite sources from Carpatho-Danubian basin. For some of them, a few analyses have been published until now.

## POSTER

### **Vth millennium BC in the Carpathian-Dniestean Region. Spatial Overview and Perspective of Settlement Pattern**

**Robin Brigand** (UMR CNRS 8215, Lab. Trajectoires, Paris), **Mariana Vasilache** (National Museum of History of Moldova, Chişinău), **Olivier Weller** (UMR CNRS 8215, Lab. Trajectoires, Paris)

This presentation examines the territorial behavior of Chalcolithic societies (Precucuteni and Cucuteni A) from the Eastern Carpathians to the river Dniester. In Romanian Moldova as in Moldova, despite a long tradition of studies on Neolithic and Chalcolithic cultures, the analysis of settlement patterns and their evolution over time remains underexploited in a global as well as synoptic perspective. Through the gathering of scattered data from either side of the river Prut and the development of a common study protocol using GIS analysis, this work aims at a better characterization of territorial trajectories of these chalcolithic societies.



### **T02S004 - RECOGNISING ARCHAEOLOGY AS A PROFESSION IN EUROPE**

**Organizers: Gerry Wait** (EAA-CPAA and Nexus Heritage, Cheshire), **Kerri Cleary** (Institute of Archaeologists of Ireland, Dublin)

One of the roles of professional associations is to maintain a register of (or to recognise) its professionals. However, in many countries this recognition is only self-regulated (if regulated at all) and there are not shared clear standards or rules for this activity. Who is an archaeologist? Does it mean the same to be an archaeologist in every European country? Although we usually have clear ideas about our own professional identities, official administrative definitions of 'Archaeology' and 'the archaeologist' are essential for building the profession. European Directive 2005/36/EC on the recognition of professional qualifications came into force in 2007, providing a tool that allows for the recognition of qualifications within the European Union. This could be a way to recognise Archaeology as a 'sectoral profession', facilitating the official recognition of the profession itself. Following this Committee's debates in 2012 and 2013, this session aims to find contributions from different European countries reporting on the regulated or unregulated situation of the 'profession', the possibilities of convergence (or not) at the European level, and the role professional associations could have in supporting this process.

## ORAL PRESENTATIONS

### **Archaeology in Latvia: The Contemporary Challenges for a Small Research Community in the Global World**

**Andris Sne** (Faculty of History and Philosophy of the University of Latvia, Riga)

Archaeology, as one of the historical disciplines, in general is among the key issues in Latvian historiography, and we may trace back this tradition since the formative period of the Latvian archaeology in the 19th century. Since 1990s, archaeological research had encountered serious transformations, including introduction of new research methodologies and interpretative approaches, increased role of heritage and public in archaeology, etc. It was the possibility to join the European archaeological community after the fall of Soviet occupation that gave new insights into the research approaches and allowed to establish contacts with colleagues in the West as well as to participate in international conferences and projects on the regular basis. But at the same time there now are several issues that are calling for changing as they do not allow proper reaction to contemporary challenges of globalised science. No doubt that many things would depend on financial investments (in technologies etc.) but there are also the issues that shall be solved by archaeological community itself. These questions relate to archaeological education, increasing activities in public archaeology, perspectives for IT usage in sector of archaeology, vocational training, character and language of publications, fragmented and state-directed organisational structure and ethical issues.

### **Die Wissenschaft und ihre Lehre ist frei**

**Raimund Karl** (University of Bangor)

Die Wissenschaft und ihre Lehre ist frei Article 17 of Austrian Staatsgrundgesetz determines that the right to carry out academic research is a fundamental freedom of every citizen. And archaeology, in Austria, is still mainly understood as an academic discipline and not as a profession. Thus, there neither is a professional association of Austrian archaeologists, nor a register of (professional) archaeologists. Not even the term 'archaeologist' is defined: anyone who does archaeological research can refer to himself by this term. The only limitation where archaeological practice is concerned, established in § 11 Abs. 1 Denkmalschutzgesetz, restricts the right to apply for permits for (but not the right to conduct) archaeological fieldwork. This right is restricted to individuals who have completed an academic degree (at Master's level) in a relevant subject, and is normally understood to apply to any kind of archaeological fieldwork in situ, though possibly (if adhering to the letter of the law), this restriction may apply only to fieldwork in situ on scheduled monuments. This limits the opportunities even for professional self-regulation, let alone for any kind of 'official' regulation of archaeology as a profession.

## Archaeology of Archaeology: Reconstructing History of a Profession in Italy

**Alessandro Pintucci** (Confederazione Italiana Archeologi, Rome)

Professional archeology has been developing in Italy during the end of the 1970s, as part of the social and political change in our country, with the insertion of a large number of working class students into universities and in the high level professional work; these people had not the aim or the possibility to keep on their academic or ministerial career, so they became the first freelance archaeologists. These historical change has happened without any legal or social recognition, till today. Since the 1980s the profession has practically grown in the construction yards, sharing knowledge for the first time with other professions, like architects, engineers, geologists, anthropologists, and giving birth to the first organizations of consultants. In the first half of 2000s first Professional Associations of archaeologist have born, as a natural evolution of the profession all over the world of freelance consultants, whose role will be finally recognized in 2013-2014. Nowadays Italian Parliament is finally discussing inserting culture professionals inside Italian heritage law code, a victory for professional associations and for the whole profession indeed.

## Archaeology as a Profession in Italy

**Alessandro Garrisi** (Italian Association of Archaeologists, IAA - ANA, Lazio)

The Italian Association of Archaeologists (IAA) is a non-profit organization that represents the archaeologists working in Italy and protects the image and the interests of the professional archaeologists in society. The National Association of Archaeologists is the largest association of archaeologists in Italy, with over 2000 members in 17 Italian regions. In order to protect archaeology as a profession we: Work with the CGIL, the main Italian workers union (5,746,167 workers registered in 2009), we have a seat in the Board of Directors of CONFASSOCIAZIONI (Confederation of Professional Associations) pursuing professional activities which are not organized into orders and colleges. IAA first goal in Italy is to get, through legislative proposals, initiatives and events, the legal recognition and regulation of the profession for the archaeologists who work every day to research, protect and enhance the Italian archaeological heritage. IAA promotes research, advocacy, proper management and enhancement of the archaeological heritage of Italy, Europe and the Mediterranean area. IAA also promotes dialogue and cooperation among archaeologists in Italy and abroad, and among the associations and organizations operating in Italy and abroad in the field of archeology.

## Attempting to Define the Profession of the Archaeologist: The Greek Case

**Vangelis Nikolopoulos** (Hellenic Ministry of Culture, 2nd Ephorate of Prehistoric and Classical Antiquities, Society of Archaeologists in Greece, Athens)

Archaeology has traditionally been a profession of prime importance, since the foundation of the Hellenic state. Today, strongly challenged by ongoing changes in archaeological practice, in Greece as in Europe, the profession of the archaeologist should be connected with enriched variety of qualifications apart excavation practices and experience. Additionally, more questions are demanding answers: “which are the official and standard criteria in order to distinguish a professional archaeologist from a graduate/post graduate of archaeology, in Greece and elsewhere?”, “which are the prerequisites for a person to be recognized as an archaeologist, and have the right to exercise the profession [consultancy, research or/and excavation]?”, or “who are the potential, public or private, employers?” The present paper intends to contribute to the international discussion by proposing an overview of the multiple professional realities, on a national and international scale. The creation of a common frame for the archaeological professions seems a necessity for scholars aiming at integrating this branch. Regardless to employers (public/private) or career status, the Society of Archaeologists in Greece proposes a first attempt to create relations and constitute a “corpus” of professionals active in various fields of archaeological practice, or aiming to introduce themselves as archaeologists.

## Organizations and the Professional Archaeologist in the United States

**Richard Ciolek-Torello** (Statistical Research, Inc., Redlands), **Terry Majewski** (Statistical Research, Inc., Tucson), **John Douglass** (Statistical Research, Inc. Tucson)

A variety of national organizations serve professional archaeologists in the United States. These include scholarly associations such as the Society for American Archaeology, the Society for Historical Archaeology, and the Archaeological Institute of America, which are open to archaeologists working in universities, museums, government agencies, and private industry, as well as to avocational archaeologists. These societies hold annual meetings and publish journals for the presentation of scholarly research, provide opportunities for training and venues for employment services, keep members up to date on relevant current events, and to the extent allowable by law promote and lobby causes and policies relevant to the profession. By contrast, the American Cultural Resources Association is a trade association representing private for-profit heritage management companies that assist private industry and local, state, federal, and tribal governments in meeting their legal compliance requirements. Finally, the Register of Professional Archaeologists is an organization that establishes professional qualifications and maintains ethical and performance standards for archaeological practice. Unfortunately,

membership in the Register represents only a fraction of practicing archaeologists. In this presentation, we explore the functions and services of these different organizations and consider ways the Register can expand membership.

### **Recognising the Archaeological Profession at Home and Abroad: Ireland as a Case Study**

**Kerri Cleary** (Institute of Archaeologists of Ireland, Aberystwyth)

The Institute of Archaeologists of Ireland (IAI) was founded in 2001 with the objective of becoming the professional body representing archaeologists working throughout the island of Ireland. The following year a survey concluded that while there were some 650 archaeologists working in Ireland, only 55% were IAI members (CHL 2002). By 2007 membership was less than half of those in the profession (McDermott and La Piscopia 2008, 7). If one of the roles of a professional association is to maintain a register of its professionals and thereby develop an understanding, perhaps even a definition, of what it means to be an archaeologist in that jurisdiction, can this be achieved with only 50% cooperation from said professionals? By incorporating the 2013 results from 'Discovering the Archaeologists of Europe 2012–2014' this paper will look again at the role the IAI plays in the archaeological profession in Ireland, why some resistance has developed and what members and non-members alike expect from a professional association. Finally, we must ask, are Irish archaeologists ready to operate as a sectoral profession at a European level or do we need to get our house in order before attempting to look beyond our shores?

### **The International Professional in Archaeology**

**Peter Hinton** (Institute for Archaeologists, Reading)

The Institute for Archaeologists is a professional association based in the UK, so this paper will begin by outlining in the UK the extent to which 'archaeology' and 'archaeologist' are defined, the extent to which the profession is regulated, and what improvements are being and could be made. But IfA reaches much further than the UK. It has members in many different countries around the world. IfA has assessed and accredited their professional competence, and wherever on this globe those members undertake archaeology they do so to a code of ethics, and to defined standards of practice. They are accountable for their behaviour, and they are supported by educational and Continual Professional Development materials and a network of professional support and services. So this paper will quickly move on to invite participants to comment on what contribution IfA and other professional associations can practically make on a European or global level to improving the practice of archaeology. We may have some answers; we do have some questions.

### **Planning the Future of the Committee on Professional Associations in Archaeology**

**Kenneth Aitchison** (Landward Research Ltd, Sheffield), **Jaime Almansa-Sánchez** (JAS Arqueologia, Madrid), **Gerry Wait** (Nexus Heritage, Oxford)

At last year's Annual Meeting, participants at the CPAA Round Table started a discussion about what the Committee should actually be for and what it should be doing. This expanded into thinking about what roles professional associations actually played in practicing archaeologists' working lives, and it was decided that a survey of individuals' memberships and how they rated the benefits that these memberships brought would give the Committee a baseline to work from. This paper will look at the data that the survey produced, will think about what those data mean, and how they will be used to guide the Committee and its advice to the EAA in the future.



### **T02S005 - PUBLIC PERCEPTIONS OF THE PAST, HERITAGE AND ARCHAEOLOGY: METHODOLOGICAL APPROACHES AND APPLICABILITY IN ARCHAEOLOGICAL MANAGEMENT**

**Organizers:** **Anastasia Sakellariadi** (Institute of Archaeology, University College London, London), **Katerina Chatzikonstantinou** (Department of Architectural Design and Visual Arts, Aristotle University of Thessaloniki, Thessaloniki)

Interest in public perceptions of the past, heritage, and archaeology is constantly increasing among archaeologists. Research has focused so far in a variety of different segments of the public, including but not restricted to local communities, sites' and museums' visitors, online communities, minority groups etc. A respective range of methodologies has been employed accordingly: from quantitative questionnaire surveys and the use of online statistics to interviews with focus groups, ethnography and others. But how can our improved understanding of people's perceptions about the past, heritage and archaeology render the way we manage archaeology more effective and sustainable? Has such research been applied to archaeological heritage management? If yes, how and what were the outcomes of its application? If no, why? What are the implications of different methodologies? What are the benefits and the shortcomings when it comes to application? In this session, experience from research into public perceptions and their application or potential application in archaeological management will be presented and discussed with the aim to further participants' understanding of the implications of public perceptions' research and its applicability. Appropriate venues for the publication of the papers presented will be suggested and discussed at the end of the session.



## ORAL PRESENTATIONS

### **Applying Research on Public Perceptions of Archaeology to Heritage Management: Some Thoughts from Research Conducted in Greece**

**Kalliopi Fouseki** (University College London, London), **Georgios Alexopoulos** (Hellenic Open University, Patra)

This paper will argue that researching people's perceptions about the past, heritage and archaeology usually has some impact on changing archaeological heritage management practice if such research is undertaken in collaboration with a relevant archaeological heritage management agency. Through a synoptic presentation of research conducted for various projects in Greece since 2010 (mainly Athens, Patras, Elefsina and Antikythera), we will demonstrate the necessity for fostering collaborative research projects between universities and archaeological heritage management agencies. In addition, we will illustrate the key challenges of such research by touching on advantages and disadvantages of certain methodologies (including qualitative and quantitative methods). We will stress that the adoption of a triangulated methodological approach is of vital importance as researchers often tend to advocate a single method which can have unintended, negative consequences for archaeological heritage management practices. More importantly, we will argue that for such research to have an impact and inform decision-making in the heritage management participatory approaches to this type of research are essential.

### **Public Perceptions of the Past, Heritage and Archaeology and Archaeological Management: A Case Study from Greece**

**Anastasia Sakellariadi** (Institute of Archaeology, UCL, London)

This paper argues that archaeological management, in order to be sustainable and effective, should always be informed by and grounded on consideration of public perceptions of the past, heritage and archaeology. This raises the issue of the importance of public perceptions research in archaeological training and practice, of the readiness of archaeologists to undertake such research and include such considerations in archaeological management and ultimately of the ways the two can be combined. The paper presents the case of public perceptions research extended to inform the drafting of a management plan for the cultural resources of the area of Philippi (Kavala, North-eastern Greece), including the ancient city of Philippi. This piece of local community research, conducted through a survey, in-depth interviews, targeted archival research and participant observation, was used to widen the scope of the management plan and enforce its social and cultural considerations and management requirements. It contributed to a longer-term relationship between the researcher and the local actors and successfully addressed the issue of representation in the management plan drafting process through the inclusion of a representative survey. Lessons learned, opportunities and constraints inform the discussion of the case study.

### **Local Perceptions of an Archaeological Site: A Case Study from Central Turkey**

**Sevil Baltalı Tırpan** (Istanbul Technical University, Istanbul)

This paper discusses local perceptions, representations and narratives of the past, the ruins and the place of an archaeological site. The findings of this paper are based on an ethnographic fieldwork conducted in the Sahmuratli village situated on the upland plateau of central Turkey, adjacent to the well-known archaeological site of Kerkenes. This Iron-age archaeological site is located on a natural mountain top right next to the village. From the perspective of the local people the place is at once religious, ancestral and historical, and it has magical, medicinal and therapeutic qualities. The presence of an archaeological project has triggered the reflexive re-evaluation of the significance of the place and engagement with the activity of local history-making. They carefully appropriate, eliminate, re-craft traces of memories and archaeological explanations and thereby formulate new stories about the meaning and history of the place. Prompted by the 'heritage', tourism and 'development' discourses they have been hearing from the local authorities, media, and archaeologists, they have been re-objectifying the place and its past also as a possible commodity.

### **Perceptions of Prehistory: Community Archaeology and the South Dorset Ridgeway**

**Hayley Roberts** (University of Bournemouth, Bournemouth)

The South Dorset Ridgeway is a landscape with a rich archaeological heritage. Comparable to the Stonehenge & Avebury landscapes, the Orkney Islands or Newgrange this significance has not yet been realised or effectively articulated to a wider public. As part of a Heritage Lottery Fund Landscape Partnership, this project will research and develop a model of best practice for the integration of archaeology and heritage 'professionals' with the 'community' of the South Dorset Ridgeway. Using a methodology of engagement designed to increase involvement and enhance public awareness it will improve public understanding of the archaeological landscape, which, if utilised successfully, will feed into future management of the shared landscape heritage. At the heart of this research is the investigation of the potential for 'enduring legacy'. What will engage the local community in the long term? How will this impact upon their perceptions of the Ridgeway and how will these influence the future management of the landscape? This paper will discuss the project design used on the South Dorset Ridgeway and the initial results of the project.



## Community-Participation and Heritage Management in Rural South Africa: Findings from the Matatiele Heritage Centre

**Nthabiseng Mokoena** (University of the Witwatersrand, Rock Art Research Institute-RARI, Johannesburg), **Sam Challis** (University of the Witwatersrand, Rock Art Research Institute-RARI, Johannesburg)

What happens when a rural community expresses the need for a heritage centre? Located in the former Transkei homeland of the apartheid era, now in the Eastern Cape Province, Matatiele is one of many disadvantaged, though culturally rich, communities in South Africa. The region has received insufficient attention to its heritage concerns and has been neglected by government and by academics for decades. Motivated by the Mehlooding Community Trust, a project run by the Matatiele community, this research addresses the local community's perception of heritage. This includes, amongst other things, their views on heritage management strategies and in particular the significance of rock art. 110 individuals from fifteen selected villages were interviewed to ascertain their interest in a heritage centre by way of representing and managing their own heritage. This paper, therefore, addresses the nature of community-participation in the south-eastern part South Africa.

## Voices from the Past and the Perception of Visitors. The Case of Elaiussa Sebaste

**Ambra Naspi** ("Sapienza" University of Rome, Rome)

In the ancient city of Elaiussa Sebaste (the modern Ayaş, province of Mersin) musealization has always gone hand in hand with the ongoing scientific excavation. The Italian archaeological mission, from 1995, has gradually allowed access to various parts of the roman and byzantine centre through a range of visitors paths outfitted with information panels. A survey, conducted with questionnaires given to visitors, allowed to acquire basic social and demographic details about the tourists, their perception of the site, the reasons for visiting it, the means by which they have known of the existence of the ancient city, their feedback on infrastructures and musealization strategies and their suggestions. This *in fieri* survey is useful to understand the strengths and weaknesses of the cultural offer of the site, in order to pilot the subsequent strategies of musealization, communication and promotion. In this way, the site could attract different types of tourists, meet better their need for knowledge and become an engine for the present day inhabitants' economic improvement.

## How to Attract and Keep the Visitor Interested (Based on the Examples from Viminacium)

**Milica Tapavički-Ilić** (Institute of Archaeology, Belgrade), **Jelena Anđelković Grašar** (Institute of Archaeology, Belgrade)

Since 2006, the ancient site of Viminacium in eastern Serbia has become an archaeological park. Ever since then, it always attracted more and more visitors. Its offer grew bigger and more attractive. From the early visitors, who were mostly archaeology lovers and accidental passers-by, it reached a level of being visited on regular bases by school classes, tourists and even cruiser passengers. Over the past several years, surveys have been conducted on who, when and why is visiting the site of Viminacium. The results, sometimes very interesting and unexpected, give data about that. They represent a starting point of further research, aiming to improve the offer of the archaeological park and its staff, and thus of the archaeological heritage management in wider sense.

## How Improved Public Perception Saves Sites: Real-Life Examples from the Scottish Coast

**Tom Dawson** (St Andrews University, St Andrews), **Joanna Hambly** (SCAPE, Scotland), **Ellie Graham** (SCAPE, Scotland)

The coastal heritage of many countries around the world is threatened by a range of natural processes. Many archaeological sites are in danger from high tides and storm surges, and climate change predictions suggest that the problem will increase in the future. Improved public perception of the value of threatened heritage assets can provide a step towards successful management. In Scotland, thousands of sites are at risk and the scale of the problem outstrips currently available resources. As part of a management solution, a national project called SCHARP gives the public direct access to archaeological survey data via a website and mobile phone apps. The aim is to actively engage the public in correcting and updating information. This action helps inform public perception of heritage and highlights threats. The public are also being asked to propose action at sites that are valuable to local communities, and twelve nominated sites will receive funding for collaborative projects involving heritage professionals and local group members. This approach is seen as a positive step towards managing a national problem and this paper will give concrete examples of how enhanced public perception of heritage can lead to improved management of a resource threatened with destruction.

## Selfies, Urbex, and "Ruin Porn": Understanding Public Engagement with the Past in the Era of Social Media

**Kaeleigh Herstad** (Indiana University, Bloomington)

Public perception of the past—and the role that social media and technology play in influencing and reflecting it—has become a central focus of the discipline in recent years. While the general advantages and disadvantages of the widespread use of smartphones and digital cameras in museums and at archaeological sites have been intensely debated, few scholars

have explored the potential that the products of these technologies have to help us better understand and engage with public perceptions of heritage. My paper asks what informal visitor photography (i.e. snapshots, selfies, “ruin porn,” etc.) at museums and heritage sites can teach us about how different publics experience and document archaeological sites, monuments, and artifacts. Drawing on data from ethnographic surveys and interviews conducted at heritage sites in the so-called “Rust Belt” of the US, I argue that the photographs that people take and share via social media sites like Facebook and Instagram offer archaeologists valuable insight into the different meanings that visitors assign to artifacts and sites. By ignoring or dismissing the usage of these technologies and their products, archaeologists miss out on a critical opportunity to engage the public in discussions about how we conceptualize and value our shared heritage.

### **Voices from the Field: The Role of Education and Outreach Initiatives in Public Perceptions of Maritime Archaeology in the UK**

**Danielle Newman** (University of Southampton, Southampton)

Thus far, the limited amount of qualitative research into public engagement with maritime archaeology through education and outreach programming has focused on the responses of the public to activities. This research has helped to generate theories on the various forms of public access to information, artefacts and physical sites, which are often submerged. As the public face of maritime archaeology, education and outreach practitioners are ideally placed to understand, observe and evaluate how public perception is being influenced by these different forms of engagement and access. However, to date, people involved in the direct implementation of these activities have rarely been given the opportunity to communicate their impressions on the successful integration of theoretical understandings and the practicalities of delivering access. The aim of this paper is threefold. First, it seeks to illustrate the role of education and outreach initiatives in shaping public perceptions of maritime archaeology. Secondly, through a series of self-reflective interviews, it will explore the practicalities as compared to the theory of public access work. Finally, it will consider how questions and problems of public access shape heritage management of maritime sites and the impact this plays on public perception.

### **Conservation, Local Communities and Sustainable Development**

**Stelios Lekakis** (CAA-UCL Research Associate, Athens), **Nota Pantzou** (Museum of Political Exiles of Ai Stratis, Athens), **Katerina Chatzikonstantinou** (University of Aegean, Thessaloniki), **Dimitris Papadopoulos** (University of Aegean, New York)

In light of the current financial crisis, the interest in the role of cultural heritage in sustainable development has increased significantly. To some extent the discussion focuses on how the protection, management and promotion of historic buildings, monuments and archaeological sites can cater for the needs of society and lead to sustainability. This paper seeks to explore how this can be achieved through cooperative initiatives and efforts of local character. Regarding alternative ways of achieving local sustainability, we turn our focus on small-scale heritage projects in Greece in an effort to assess the potential of such initiatives in ensuring the viability of both sites and local communities. The hope is that such a synthetic approach could shed light on diverse channels through which cultural heritage and its preservation affect local growth.

### **Do You Believe in Unicorns? Public Perceptions of Heritage and Management Beyond Stones**

**Jaime Almansa-Sánchez** (JAS Arqueologia, Madrid)

Unicorns do not exist and never existed, however it might be easier, in certain contexts, to find people believing in unicorns more than archaeology. This questionable and extreme example leads us to the archaeological illiteracy of most people, even within their communities. Values that are beyond any question for us do not normally remain that clear for the general public or other stakeholders that end up managing heritage. This is why we have to face so many “attacks” to heritage, from direct destruction to other ways of misuse. This paper will propose a public archaeology approach to the management of archaeological heritage, having in mind all those issues that happen around us, and education as the basis of knowledge and respect.

### **Experiencing the Past in the Everyday: Reflections from Adopting an Ethnographic Approach with a Socially Excluded Group in Athens, Greece**

**Eleni Vomvyla** (Institute of Archaeology, UCL, London)

In this paper I draw from my ethnographic experience with five Albanian families in Athens to argue for the salience of bottom-up approaches in exploring an oppressed group’s meanings of heritage. Over a period of one year I investigated families’ ‘hidden’ narratives by sharing lives with participants: I conducted weekly visits to their home settings and joined them in a range of outdoor activities, from the flea market and the playground to community centres and museums. Participant observation, open-ended and walking interviews in combination with visual ethnography techniques empowered these marginalised individuals to take ownership of the research and construct history and heritage in their own terms. More importantly, the on-site and context-sensitive nature of these methods allowed a holistic treatment of the heritage concept having direct implications for professionals in the Greek cultural heritage sector and the stories they tell. Conver-

sations with families, particularly the younger generation, highlighted the importance of re-visiting heritage with an intercultural perspective, where the plurality of identities that have existed in the past would cater for the plurality of identities that exist in the present.

### **That Russian Nowadays Schoolboy Knows about the Archaeology?**

**Olga Ryzhkova** (Social and Pedagogical Academy, Nizhny Tagil), **Ekaterina Chernenko** (Social and Pedagogical Academy, Nizhny Tagil)

This article analyses the views and relations of Russian students and teachers to the archaeological antiquities, estimated the place of archaeological knowledge in the school and university education, compares information resources and opportunities for archaeological education students from Cities and provinces; proposes measures for improving the historical and archaeological competence, for forming of young people's attitudes to the archaeological heritage in Russia and other different countries in the world.

### **Talking with Numbers and Assuming what the Public Thinks: The Case of Museum Card in Turkey**

**Işıl Gürsu** (British Institute at Ankara, Ankara)

In 2008 Turkish Ministry of Culture and Tourism has introduced a museum card for Turkish visitors "in order to create awareness about cultural properties and museums." The card enabled the visitors to visit archaeological sites and museums which belonged to the ministry all year long and for unlimited times. 3.636.847 cards were sold from June 2008 to December 2012. Since then, many officials reported the success of the card looking at the sales numbers. The mentality, which explains the lack of participation to museums and archaeological sites solely on economic grounds and therefore advocates a solution through incentives such as museum cards, overlooks the core of the problem. In order to challenge this mentality, this paper presents some of my PHD study findings which came out of the quantitative analysis of 124 visitor interviews conducted at 21 different archaeological sites and museums in Turkey. Some of the questions shed light on the perceptions of the visitors regarding the museum card and reveal findings that challenge the above-mentioned mind-set. More profoundly, the paper attempts to question the legitimacy of talking with numbers and the introduction of problematic success criteria by the decision-makers in museum and archaeological site management fields.

### **How to Plan an Ancient City within Modern Settlement: The Case of Soli Pompeiopolis**

**Remzi Yağcı** (Department of Museology, Dokuz Eylül University, Izmir)

What will happen when an ancient city, which was abandoned to its destiny for centuries, ultimately meets modern settlement? Should the ancient city remain silent while the modern settlement expands its boundaries gradually? Only a professional approach will solve this contradiction which is a natural consequence of today's rather coincidental planning process. Ideally, first should come the archaeological project, then the expropriation and restoration projects will give an impetus to the planning process. Lastly, environmental planning will enable the ancient city to hold a dynamic place within the modern settlement. The aim of this paper is to revisit this planning process, problems encountered during this process and possible solutions to these problems by focusing on an ancient coastal city, Soli Pompeiopolis in Mersin.

## **POSTER**

### **Illustrator as a Cultural Translator in Archaeology**

**İlknur Türkoğlu** (Kırklareli Cultural Heritage Management Project, Istanbul)

While the role of cultural heritage expands in society, interpreting of the archaeological data is becoming more important. In the prehistoric sites where the remains are visually weak and hard to understand, this task is gaining importance. At the growing number of site museums and Arkeo-Parks, archaeological knowledge is transferred to visitor groups at different levels. In this context, Asagi Pinar excavation constitutes an important and pioneer example. Aşağı Pinar is a prehistoric site, located at Turkish Thrace, excavated since 1993. In recent years, three wattle and daub building reconstructed as exhibition halls and an exhibition of models illustrations and panel has been displayed in these buildings. This poster will express the methods and language of the illustrations at Aşağı Pinar exhibition area.



## **T02S006 - IS THERE REASON TO PARTY? TEN YEARS OF THE WORKING GROUP ON FARMING, FORESTRY AND RURAL LAND MANAGEMENT**

**Organizers: Emmet Byrnes** (Flemish Land Agency, Brussels), **Karl Cordemans** (English Heritage, London), **Jon Humble** (Department of Agriculture, Food and the Marine, Dublin)

The Working Group is a joint group of the European Association of Archaeologists (EAA) and Europae Archaeologiae Consilium (EAC). Its purpose is to improve understanding and management of the impacts on the historic environment of farming, forestry and those forms of rural land management which lie beyond the remit of the spatial planning systems of European

member countries. The group was established at the 10th Annual EAA Meeting held in 2004 at Lyon, and thus in 2014 will be celebrating a decade of existence. In this session we'll look back at what has happened since the start of the WG. What has changed, what have we accomplished and what can we learn from past events? At the same time we want to look ahead and determine where the future focus of the WG should be, and how we can do better. Since the Common Agricultural Policy has been such a big focus of the group's attention over the past decade, and particularly over the last two years (as a new policy has been negotiated), part of this assessment of our achievements – and the continuing obstacles – will look at how member states have managed to incorporate heritage in their Rural Development Programmes for 2015 onwards.

## ORAL PRESENTATIONS

### **Heritage, Farming and Forestry - Management Experiences in Sweden 2004-2014**

**Leif Gren** (Swedish National Heritage Board, Stockholm), **Thomas Risan** (Swedish National Heritage Board, Stockholm)

Sweden was represented in the first session of the working group, in Lyon 2004, and gave a paper on Archaeology versus Nature, Heritage protection - landscape management - preservation of nature / management of the biocultural heritage. The purpose of the paper intended to promote awareness of the impoverishment of the heritage in the landscape, and the relationship between heritage, forestry and Common Agriculture Policy. What has happened in Sweden since 2004? This paper will sum up experiences and look into the future, with the Swedish Rural Development Programme as point of departure.

### **The Use of the LEADER Programme to Promote Archaeology in Scotland**

**Cara Jones** (Archaeology Scotland, Edinburgh), **Phil Richardson** (Archaeology Scotland, Edinburgh), **Jonathan Wordsworth** (Archaeology Scotland, Edinburgh)

The LEADER programme under the Common Agricultural Policy has offered innovative and 'bottom-up' initiatives to support local communities. This paper will examine how the programme has been adopted in Scotland over the last 10 years to benefit Scotland's rural heritage with particular reference to Archaeology Scotland's Adopt-a-Monument Scheme, but will also reference other schemes including the Bute Landscape Partnership Scheme. <http://www.archaeologyscotland.org.uk/our-projects/adopt-monument>. <http://www.argyllandislandsleader.org.uk/?p=75>.

### **Heritage of Olive Culture**

**Mahmut Boynudelik** (Founder, Adatepe Olive Oil Museum, Adatepe)

We would like to introduce the Museum of Olive Oil and discuss its contributions to the agricultural heritage of Northern Aegean part of Turkey. Although olive production dates back to pre-historic times in Turkey, much of its history is being forgotten in our times. With the introduction of modern technology traditional olive oil extraction mills are vanishing one by one. In order to preserve the literary and visual history of olive culture in Turkey and create awareness in agricultural heritage, an olive oil museum was established within an old factory building. The museum of olive oil was formed with the concept of a living museum, thus traditional olive oil extraction methods is shown during olive harvest season. Visitors are encouraged to join olive harvest and observe olive oil extraction with crushing millstones and hydraulic presses. The museum houses a rich collection of various production tools that reflect the daily life of olive growing farmers.

### **Finnish Archaeology of Forests and Agricultural Areas**

**Riikka Mustonen** (Metsähallitus, Helsinki)

Surveys in Finland have traditionally been concentrating on agricultural areas of the south and areas of town planning. The Northern Finland with vast areas of forest and wilderness has been considered to be an area of much less human activity during the course of history. Lately co-operation between forest product companies and archaeologists has led to survey projects such as KMO with the main goal of surveying all state forests and the SKAIK-project. The results of these projects have changed the previous picture of uninhabited forests and showed that there is plenty of material to work on. Since the agricultural areas of Finland have been widely excavated already in the 20th century and nowadays agriculture employs fewer than 4 % of the population, there has been no wide interest in the special questions concerning archaeology of agricultural areas in Finland lately. There also has been no general discussion of the effects of the new CAP among archaeologists. It is time to pay much more attention to forests and agricultural areas in Finnish archaeology and the Working Group on Farming, Forestry and Rural Land Management has set a good example and starting point for that.

### **Heritage Management within the Flemish CAP**

**Karl Cordemans** (Flemish Land Agency, Brussels)

Already in 2003, the set-up of a heritage stewardship scheme was elaborated. After some failed attempts, the Flemish Land Agency finally managed to set up a stewardship scheme in collaboration with the Heritage Department. Fully integrated with the regular agri-environment-climate measures, farmers will be compensated for managing archaeological, historical

and green heritage. Listed heritage features and archaeological sites will benefit from suitable management such as strategic grassland cover and bufferstrips. Complementary, the new Land Development Decree provides the opportunity to offer tailor-made heritage stewardship schemes to archaeological sites in projects areas of the Flemish Land Agency.

### **The CAP in the Netherlands**

**Cees Van Rooijen** (Cultural Heritage Agency, Amersfoort)

I will discuss the results achieved with the support of the CAP in the Netherlands and give a preview on how the new CAP support can be deployed for heritage. In the Netherlands the CAP funding which has been available for landscape and/or Archaeology over the past decade, has mainly be used to improve the visibility of monuments and structures. This helped to strengthen the interest in Landscapes and Sites, but use of the CAP for the management of sites, especially those in agricultural areas, was problematic. The new CAP opens up possibilities for management of landscape in agricultural areas, but there are some major challenges. The first one is that Nature conservation is leading in where the money will be used. So only sites and landscape in agricultural areas and in the vicinity of nature conservation areas may qualify for support by the CAP. Luckily there is a good collaboration between the Cultural Heritage Agency (RCE) and nature conservation organization. The RCE has asked DLG (Rural Area Service) to explore in detail the possibilities, challenges etcetera which the new CAP will provide. We will present some of the results during the EAA 2014.

### **Not a Cent until Proven Guilty. Forestry, Justice and Cultural Heritage in Finland**

**Vesa Laulumaa** (The National Board of Antiquities, Helsinki)

Finland has one of the strongest laws in the world to protect archaeological sites, but protection in the forested areas has proven to be difficult. The Antiquities Act protects the sites from the moment they have been discovered and any kind of damage on them is always a crime. Crime that has been often committed but very seldom punished. Damages caused by the forestry are always complicated in juridical sense. It has to be demonstrated who was responsible for the damage and if it was done deliberately. The main problem is, that there are always several operators (landowner, planner, buyer, drivers etc.) and it is a very laborious task to show responsibilities. During the last decade forests and cultural heritage has gained some publicity. New projects have been launched to survey cultural heritage sites in the state and private owned forests, and forestry operators have been educated to avoid damages on sites. Court cases concerning cultural heritage crimes in the forests have been reported in newspapers quite visibly. Has this all had any effect on court decisions? In this paper some of the cases will be examined and evaluated to recognize any attitudinal changes in court orders in the past ten years.

### **Archaeology and High Nature Value Farming in Ireland**

**Christine Grant** (National Monuments Service, Dublin)

A lot has changed in Ireland in recent years regarding archaeology and agri-environment schemes. In particular the removal of archaeological options from mainstream agri-environment schemes is a step backward in achieving the most effective protection for our rural heritage. In the last four years a pilot agri-environment scheme, tailored to suit the needs of high nature value areas, has included archaeology in its programme. This pilot scheme, the Burren Farming for Conservation Programme, was developed on foot of an EU LIFE project and has been very successful. An application has been made under Irelands Rural Development Programme for its continuation and expansion. This is now being considered and a decision is due later this year. As this decision is awaited a new EU LIFE project is getting underway looking at farming practice on The Aran Islands off the west coast of Ireland, another area of archaeological importance. This paper will look at the potential future for archaeology within such specialised farming schemes.

### **The Road from Lyons 2004 to Istanbul 2014 - Heritage Management and Sustainable Rural Land-Use**

**Jon Humble** (English Heritage, London)

This paper will review the achievements and progress of the EAA / EAC working group on Farming, Forestry and Rural Land Management, in the ten years since its inception at the Lyons conference. In addition to organising several conference sessions and round tables, in 2010 working group members brought to publication a monograph *Heritage Management of Farmed and Forested Landscapes in Europe* (EAC Occasional Paper No 4) and with various partner organisations, *Europe's living landscapes: Cultural heritage as a force for rural development*, a document intended to raise awareness of the issues and assist with lobbying for progressive change. By sharing good practice, working group members have also achieved much within their home countries. Notwithstanding the considerable diversity of rural landscapes and land use in Europe, common principles and approaches are increasingly being developed towards their effective heritage management - although much remains to be done. Indeed, new members of the working group are always welcome, especially from countries not yet represented. In a rural context, it is suggested that the goal of sustainable land use - rather than the current emphasis on sustainable development - is perhaps a more useful and appropriate concept for heritage managers.





## T02S007 - ARCHAEOLOGY AND TOURISM

**Organizers:** **Annemarie Willems** (ArchaeoConcept, Biel/Bienne), **Cynthia Dunning Thierstein** (ArchaeoTourism2012, Biel/Bienne), **Ben Thomas** (Archaeological Institute of America, Boston)

The two fields of archaeological heritage and tourism are not as far apart as they may seem and are in fact growing even closer as more sites are being developed for tourism. Archaeological sites are often major tourist attractions. They are also part of the history and heritage of a particular region and can have great value on a national or even international level. There is an area of great opportunity in the cooperation between cultural managers and tourism experts but these efforts must be considered carefully and care must be taken to maintain the integrity of archaeological research and archaeological sites. In this session we will examine how archaeologists and tourism experts can work together and determine where the opportunities and challenges lie within this cooperative effort. We will explore the possibilities and best practices of presenting archaeological research and communicating the importance of archaeological heritage to an interested public. We would also like to explore how archaeologists can work with tourism experts to create public awareness and make the development of archaeological sites profitable in a sustainable way.

### ORAL PRESENTATIONS

#### **Achieving Tourism and Heritage Management Partnerships: A View from both Perspectives**

**Hilary du Cros** (Hong Kong Institute of Education, Department of Cultural and Creative Arts, Hong Kong)

**Achieving Tourism and Heritage Management Partnerships: A View from both Perspectives.** This paper will explore the relationship between tourism on one side and cultural heritage management on the other by examining the broad range of relationships possible between tourism and heritage management sectors. Relationships from full cooperation/partnership through to full conflict will be outlined with examples from around the world. Insights will be given about stakeholder hierarchies and priorities, communication and transparency, leadership, maintenance of cultural values, development of responsible marketing opportunities, managing visitors' expectations, experience and on-site behaviour. The paper is intended to provide some background context to more detailed case studies by other presenters in this session and a state-of-the-art interpretation of the partnership between tourism and cultural heritage management first examined in 2002 by the presenter.

#### **Balancing Heritage Conservation and Tourism to Engage Local Communities and Visitors**

**Robert Early** (IFA, ICOMOS, Oxford)

Heritage professionals around the world are under increasing pressure to develop economically sustainable attractions while balancing the requirements of best practice conservation. Despite the mutual success of the heritage and tourism sectors, highlighted by the 2020 vision of the World Tourism Organisation (WTO) that predicts that cultural tourism will be one of the five key tourism market segments in the future, in some quarters these sectors are still viewed as uneasy partners. In recent years, archaeologists have placed emphasis on closer relationships with local communities and visitor experiences have been kept under closer scrutiny from their visitors through new media vehicles such as Trip Advisor. Consequently, there is now a real impetus and mutual interest for conservation, heritage and tourism managers to work more closely together with local communities and potential visitors alike to create satisfying, meaningful and sustainable visitor experiences. This paper will provide examples from a European funded archaeological project that evolved from research into a local tourism attraction and a heritage and tourism collaboration in China. Commonalities in the approach of both sectors will be highlighted together with the need to balance contrasting objectives, as well as engaging local stakeholders and a potentially more critical visitor.

#### **Why don't They Build Ruins as nice as this anymore: An Appraisal of Archaeological Tourism in Croatia**

**Sanjin Mihelić** (Archaeological Museum in Zagreb, Zagreb)

With estimates of nearly twenty percent of GDP of Croatia, tourism is often perceived as the lifeblood of national economy. The immense wealth of Croatia's heritage, on the other hand, as the home of countless archaeological and historical cultural monuments, makes Croatia a unique cultural and historical landscape. Culture tourism or, more precisely, archaeological tourism is a well-developed and established system that, in successful cases, has a beneficial effect on the diversity of tourist offer and, not infrequently, an even stronger effect on preservation and protection of the heritage itself. Yet there still seems to be a palpable lack of programmes that successfully evaluate tourist potentials of the country's archaeological heritage. The paper explores the possibilities for an integrated approach in the management of tourist destinations with the focus on archaeological resources by bringing together archaeologists and tourist workers, both on local and national levels.

#### **Çatalhöyük before and after UNESCO: The Reconfiguration of Visitor Demographics & Tourist Experience**

**Sara Perry** (University of York, York), **Angeliki Chrysanthi** (University of Southampton, Southampton)

The Neolithic site of Çatalhöyük in central Turkey has a 50+ year history of public presentational efforts and interpretative output. That history is marked by a range of creative, often critically self-conscious work (illustrative, photographic,



museological, artistic, filmic, etc.) implemented by multiple teams for the site's various international audiences. In 2012, Çatalhöyük was awarded UNESCO World Heritage status, and in that moment the nature of tourism and engagement at the site shifted profoundly. Ongoing data collection by the Çatalhöyük Research Project's Visualisation Team suggests that not only have tourist numbers and the overall visitor demographic fundamentally changed, but so too have the basic means by which individuals move through, appreciate and interpret the archaeology and its wider contextualisation within the landscape. Some of these shifts have deep, potentially very problematic implications for the site, and stand as major challenges for resonant, provocative presentational efforts in the future. Here we offer an overview of the changing configuration of tourism at Çatalhöyük, and cast a critical eye on the impact of World Heritage designation on visitor experience at the site.

### **Archaeological Tourism as Heritage Interpretation in Present-day Poland**

**Michał Pawleta** (Institute of Prehistory, Adam Mickiewicz University, Poznań)

The aim of my presentation is to determine the role archaeological reconstruction and historical re-enactment may play in the archaeological tourism currently conducted in Poland. These issues are discussed in the context of the changes which have ensued in contemporary attitudes to the past caused by a series of economic, cultural and social factors. It stresses the role of archaeological reconstruction and historical re-enactment in present-day contact with the past and also discusses the tendency of the past to be treated as a commodity and turned into a marketable product in the form of goods and services, shows, experiences and tourist attractions. Next, I present an overview of the different types of cultural tourism including archaeological tourism and living history tourism, and goes on to describe the characteristic features of the tourist product and the criteria for its sub-division into categories. Archaeological reconstruction and historical re-enactment are then discussed from this point of view, with special consideration of the potential they have to offer for the creation of archaeological tourist products. The aim of the critical analysis of these phenomena is to identify their advantages and disadvantages and in the long run to initiate serious discussion on the subject.

### **Reassessing Sustainability and Heritage Tourism at Çatalhöyük and Aktopraklık, Turkey**

**Caitlin Curtis** (University at Buffalo, Buffalo)

"Sustainable heritage tourism" has come to be seen as a panacea for the destruction of heritage. Despite the ambiguous nature of "sustainability," it is now understood as a moral imperative by politicians, as well as tourism and heritage experts, which can seem to render the need to consult non-experts unnecessary. However, it is becoming clear that heritage tourism does not always succeed sustainably, whether "sustainability" is defined in terms of avoiding detrimental effects to the environment and material heritage, retaining cultural authenticity and community cohesion, or producing long-term economic benefit. Concerted ethnographic research may provide a solution. By fully understanding a community's structure and problems in advance, as well as inhabitants' ideas regarding sustainability, heritage, and tourism, a conduit for decision-making input by the local community can be created. Thus, rather than relying solely on the expertise of either archaeologists or tourism experts in the planning process, ethnography directly incorporates the people whose lives will be entwined in the implementation of these plans, and increases the likelihood that both heritage preservation and sustainable tourism will succeed. On-going research in the local contexts of the Aktopraklık and Çatalhöyük archaeological sites in Turkey will demonstrate these concepts.

### **Site Preservation, Heritage Tourism, and Local Community Involvement**

**Ben Thomas** (Archaeological Institute of America, Boston), **Meredith Langlitz** (Archaeological Institute of America, Boston)

Increasingly, archaeological site preservation around the world is being linked to heritage tourism. Archaeologists and site managers often have to consider the needs of tourists and tour operators while making decisions about what at a site should be preserved and how it should be presented. As tourism and archaeology draw closer together several issues need to be considered. These include assessing how tourism will impact the archaeological site and affect research decisions; determining who controls the development of the site for tourism and who will benefit from the results; and of critical importance, the issue of how local communities will be engaged with the process. For projects to succeed, local communities have to be involved at every stage from planning to final execution. Since 2007, the Archaeological Institute of America's Site Preservation Program has been trying to identify and financially support innovative preservation programs that not only preserve sites but also ensure that local communities are involved in the process and benefit from the results. This paper discusses several of projects from around the world that are planning and implementing programs that successfully incorporate heritage, preservation, tourism, and local communities.

### **Archaeology and Tourism – Problems and Possibilities: An Example from West Sweden**

**Tony Axellson** (University of Gothenburg, Gothenburg)

This paper intends to present one way of communicating and involving the public/tourists in the archaeological research in Varnhem in west Sweden. The paper is based on the insights from a research and communication project dealing with the early medieval period (900-1050 AD). The project had, besides the archaeological aims, also the aim to communicate his-

torical knowledge to the public in a new way. When the communicative part of the project was planned, it was important that the excavation should be open and possible to visit at any time, not just in connection with guided tours. The visitors were encouraged to walk on the site and discuss with the archaeologists. This approach turned out to be a huge success. In 20 weeks during field season the excavation had about 20,000 visitors and became a tourist attraction.

### **Tourism and Archaeology: Guidelines for Best Practice in a European Context**

**Cynthia Dunning Thierstein** (ArchaeoConcept, Biel/Bienne)

Archaeological sites are visited by many more and more people eager to increase their knowledge of the past but also out of curiosity for ruins and the discovery of unknown treasures. This increase of visitors puts a supplementary stress on the archaeological sites. Often tourism specialists and tourists ignore the importance of archaeology and the fragility of the sites and archaeologists do not know how to manage this new flux of visitors. While the ICOMOS International Cultural Tourism Charter – Managing Tourism at Places of Heritage Significance adopted in 1999 in Mexico gives terms of reference for tourism and heritage (including archaeology) and the ICOMOS “Ename Charter” adopted in 2008 offers guidance on the presentation and interpretation of cultural sites, there are only few practical guidelines for archaeological tourism. A few years ago, the Archaeological Institute of America published Guidelines to Best Practice for archaeological tourism destined to site managers, tour operators, tour guides and tourists as well as to the local community as to develop better understanding between all partners involved. But there is no such document existing in Europe. This paper will explore the necessity of such guidelines and propose the formation of a European working group to establish them.

### **The “Invention” of an Asset: Carlo Magno in Rome**

**Anna Paterlini** (The American University of Rome, Rome), **Richard Hodges** (The American University of Rome, Rome)

Carlo Magno (Charlemagne) is usually associated most closely with Aachen, Germany. However, Carlo Magno’s best preserved legacy, unsurprisingly, is in Rome. Here, he was crowned Emperor in AD 800, introduced his reform denier (the precursor of the euro) and supported successive popes to re-make the eternal city. Numerous churches and monuments from this era can still be visited today. In short, Rome is the quintessential destination in Europe where the achievements of the Carolingian Renaissance can be appreciated and debated. However, this is not considered and exploited as an actual asset for the cultural tourism industry of Rome. How do you “invent” an asset then? In early 2013, the American University of Rome in partnership with Zétema Progetto Cultura launched and led a project called “Making Carlo Magno as asset for Rome” with the aim of helping Rome use this extraordinary asset more effectively, explaining it to a new global age and increase cultural heritage tourism. It also aimed to train Italian specialists in modern principles of investing in heritage development. This paper will explore the objectives, methodologies and results from this 5-day master class based on a mixture of European and American practices in heritage tourism, in association with proposal for further developments.

### **Archaeological Sites and Visitor Expectation, Observation from Antalya**

**Aydın Uçar** (Akdeniz University, Antalya), **Hilal Tuğba Örmecioglu** (Akdeniz University, Antalya)

Since 1980, the tourism sector has grown in Turkey and especially the province Antalya has become a popular destination. The last data shows us that approximately over 12 million tourists visited Antalya and over 3 million of them visited the archaeological sites in this province. Archaeological excavations have a long history in Turkey and the archaeological treasures of the country are very important, but what about the presentation of the archaeological sites? There is always pressure on the archaeologists to open the sites immediately to the visitor during the excavation, because of its income potential. There is a conflict between conservation and tourism. Archaeologists and conservators fear the tourists because they may bring more harm than benefits to the sites. There has been progress about tourism and presenting of cultural heritage in international level, if you consider the *Interpretation of Cultural Heritage Charter*. Do the sites satisfy the expectations of the visitor? What has been done on our archaeological sites? The aim of this paper is to share our observations from the popular archaeological sites of Antalya; Perge, Aspendos and Lyre (Seleukeia) to find the answers to the questions mentioned above.

### **Archaeology and Tourism in Campania**

**Raffaella Pierobon** (Università di Napoli Federico II Dipartimento di Studi Umanisti, Naples), **Maria Amodio** (Archaeologist), **Lucia Cianciulli** (Archaeologist), **Paola Orlando** (Archaeologist)

The paper focuses on the use of the archaeological heritage of Campania and its ‘touristic policy’ from the past to the present. Campania was a required stop of the “Grand Tour”: Pompeii and Herculaneum, discovered in 18<sup>th</sup> century, exercised a huge fascination on foreign travellers; they lingered long in the region exploring naturalistic, archaeological, historical and artistic heritage. With the development of the collective and “bourgeois” pleasure trip in the second half of the 19<sup>th</sup> century, modern tourists lingered less, and hastily visited archaeological and naturalistic attractions, especially the Vesuvian cities. While the development of infrastructures facilitates the tourist flow to the latter cities, urbanization and industrialization penalized other areas, such as the Campi Flegrei, by destroying the landscape, which was full of history, archaeological and

naturalistic features. Nowadays Campania remains an important destination for intercontinental tourist flows, but archaeological tourism is focused exclusively on Pompeii and Herculaneum. Many other historical attractions, both coastal and inland, are not included in the holiday package, although they were recently enhanced with the creation of archaeological parks or museums, such as the Archaeological Museum of the Campi Flegrei settled up in the gorgeous Castle of Baia.

### **Tourism and Cultural Heritage Conservation: Good and Bad Practices at Pompeii, Herculaneum and in the Vesuvius Area**

**Tsao Cevoli** (IAA - Italian Association of Archaeologists), **Lidia Vignola** (International Centre for the Study of Herculaneum)

Tourism is an activity that may contribute financially to the conservation of cultural heritage. The movement and behaviour of tourists at an archaeological site is, however, a possible cause of deterioration of ancient structures, paintings, mosaics and archaeological finds. Therefore, this factor must be analyzed and properly managed. In our paper we will examine good and bad practices of the relationship between archaeology and tourism in a particularly complex case study: Pompeii, Herculaneum and the others archaeological sites around Vesuvius, some of the most visited archaeological sites in Europe. Pompeii has, in fact, approximately 2,500,000 visitors per year and up to 20,000 visitors a day.

### **Terra Valley Archaeological Park (PAVT). Landscape Interpretation and Knowledge Transfer**

**Luís Fontes** (Unity of Archaeology - University of Minho, Braga), **Mafalda Alves** (Unity of Archaeology - University of Minho, Braga)

The territory of PAVT is a continuous geographical area of about 60 km<sup>2</sup>, situated in the north of Portugal. Despite the difficulties of the present, its small population wants to conserve the essential features of the landscape. The PAVT's territory still has a vast and rich archaeological heritage that contains 9 settlements from the Iron Age, 12 Roman sites and 7 other medieval sites bearing witness to an intense and varied occupation of the valley in the long term. In developing the PAVT project the contribution of archaeology was of particular importance, since its studies help to analyse the landscape evolution and allow identifying potentialities, hierarchizing heritage values, and setting options for the enhancement and respective proposals for action, according to a perspective of applied research. The options for the enhancement have focused on conservation and qualification of heritage resources, from the perspective of its public enjoyment through the installation of infrastructure and equipment. The transfer of knowledge, based on ongoing investigations, will be communicated by means of an Interpretation Centre and interpreted itineraries through the landscape. The main objective is to ensure a sustained enhancement and integrated management of PAVT that promotes social and territorial cohesion, that is, that fosters the welfare of the local populations.

### **The Project, eScape, Combines Landscape Storytelling, Art and World History**

**Lene Høst-Madsen** (Skanderborg Museum, Skanderborg), **Marianne Purup** (Visit Skanderborg, Skanderborg), **Nina Bangsbo Dissing** (Municipality of Skanderborg, Skanderborg)

The project, eScape, combines landscape storytelling, art and world history. eScape is a project about a unique place, situated near the town of Skanderborg in Denmark, called «Alken Enge» - The Holy Valley. At the moment archaeological excavations show unique findings which have not been found anywhere else in the Nordic countries or in the world; underneath the surface a small army found their final resting place 2000 years ago. This spring, an exhibition opens at The Museum of Skanderborg, exhibiting the unique findings from Alken Enge. Late summer 2014 new excavations will take place «on location» at Alken Enge, locals as well as tourists are given the opportunity to experience landscape storytelling due to the project eScape. eScape is all about creating and telling land art in The Holy Valley in combination with the excavations. The location and the landscape is the *raison d'être* of the project - and both archaeology and art can be interpreted as storytelling, combining history, time and place of a unique space. eScape brings out art and cultural heritage "on location", away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.

### **Archaeological Research as a Tourist Attraction: Fieldwork on St. Barnabé Island (Rimouski, Québec, Canada)**

**Manon Savard** (Université du Québec à Rimouski, Rimouski), **Nicolas Beaudry** (Université du Québec à Rimouski, Rimouski)

St. Barnabé Island is one of the main tourist attractions of eastern Québec (Canada). Archaeological fieldwork has been carried on the island since 2009 by a team from the Université du Québec à Rimouski. The project was initiated at the invitation of the local tourism board who sought to add to the touristic offer of the island by documenting and putting forward its history, in addition to its natural environment, with a focus on the first known islander, the mythical hermit Toussaint Cartier. Engaging with a local myth initially contributed to the visibility of the project, and as archaeology shed a new light

on earlier and later occupations and uses of the island, it broadened the scope of the visitor's interests as well as that of the media coverage of the project. This, in turn, has contributed to broadening the projects of the local tourism board's for the island. This presentation discusses how, over the years, archaeology itself has become one of the main attractions of the island and an extra layer of its history.

### **Digging like a pro – An Archaeological Tourist Experience in Wales**

**Katharina Moeller** (Prifysgol Bangor University, Bangor)

In the summer of 2014 tourists will have the opportunity to become part of the team on an archaeological excavation in North-Wales for the fourth time. The excavation, which is run as a field school by the School of History, Welsh History and Archaeology of Bangor University examines a Bronze- and Iron Age double ring work hilltop enclosure on the Llyn peninsula. There, the tourists will get their hands dirty right next to local volunteers, work placement and field school students and learn how an excavation is conducted properly. This hands on approach to combine archaeology and tourism is mutually beneficial. On the one hand, the fees paid by tourists help to fund the field school and on the other hand the tourists get the chance to experience archaeology on a wholly different level. For some of them, it is the first step into the profession. For others it simply is a childhood dream come true and as feedback shows they love it. This paper gives an example of how archaeology and tourism can be combined in an interesting way and discusses the pros and cons of this approach.

### **More than Tartan and Whisky: What can Archaeology Offer the Tourism Industry in Scotland?**

**Derek Alexander** (The National Trust for Scotland, Edinburgh), **Richard Strachan** (Historic Scotland, Scotland)

This joint paper reviews the archaeology on properties of both the National Trust for Scotland and Historic Scotland and how it can encourage tourism. The National Trust for Scotland is a charity charged with the protection and promotion of Scotland's natural and cultural heritage and has 129 properties and 76,000 hectares of land. Historic Scotland is the Scottish Government's agency responsible for safeguarding the historic environment and has over 300 Properties-In-Care. Between these two bodies lies the care of some of Scotland's most iconic cultural heritage sites and they therefore are major players in Scotland's tourist industry. From castles and islands to mountains and battlefields, all have an archaeological element to them. Archaeology plays a key role in the understanding of these sites and is often reflected in interpretation. The new visitor centre at Bannockburn battlefield has taken a markedly different approach than Culloiden to the use of archaeological evidence. Archaeology can provide a tangible link with the past and provides integrity to elements of interpretation. While there are many strands of archaeology that can be used to attract tourists and provide a better visitor experience, we must be able to measure success and create more engaging approaches.

### **Community, Conflict & Archaeology in Old Akko (Acre), Israel**

**Emma Heidtman** (University of Rhode Island, Kingston)

In 2001, the Old City of Akko, Israel was declared a UNESCO World Heritage site. This designation was based on the Old City's Ottoman and Islamic-era town, and the partly subterranean ruins of a well-preserved Crusader port. The Old City lies within a larger, mostly Jewish community, and remains a living Arabic town, where tourist shops have not yet replaced vegetable markets and small fishing boats dominate the marina. Akko's Arab community is economically depressed and sceptical of efforts by officials to develop the port for tourism. Moreover, the city's cultural resource management plans, formulated by both local development companies and the government, have generated conflict with residents, who have resisted some efforts to have Akko's Crusader legacy promoted alongside its 18th-19th century Arabic-Ottoman heritage. The situation has been complicated by the recent discovery of well-preserved Hellenistic port facilities extending underneath the town and its fishing marina, prompting proposals to incorporate these features into the city's heritage tourism infrastructure. The conflict between community and archaeology, and the danger of privileging of dominant histories in regions of ethnic and religious conflict, are old and widespread problems. Akko, however, has been experimenting with some new solutions, which this paper seeks to evaluate.

## **POSTERS**

### **Byzantine Kastoria and Prehistoric Settlement of Dispilio: Challenges, Opportunities of Tourism Development**

**Alexandra Karagianni** (Aristotle University of Thessaloniki, Thessaloniki)

The paper aims to create the public awareness concerning the promotion and protection of the archaeological heritage of the Byzantine town of Kastoria and its nearby prehistoric settlement of Dispilio. It also intends to point out the need for creative cooperation between archaeologists, local authorities and tourism managers for better management of the archaeological heritage and the touristic and economical development of the region. The lakeside town of Kastoria has a rich Byzantine past and preserves pure medieval traditions in its urban design and architecture. Its archaeological heritage includes 75 Byzantine churches, 26 mansions and the Palaeolithic cave of "the Dragon" with seven underground lakes and

ten rooms. The prehistoric lakeside settlement of Dispilio, seven km northern of Kastoria, dates from the Neolithic period. Among the archaeological items unearthed is a wooden tablet with inscribed markings dating around 5260 BC. In the area there is an archaeological park visited by tourists and an eco-museum, a unique open-air museum with eight huts built on pile platforms that illustrate this prehistoric water civilization. Both these regions started cooperating with neighbouring countries in order to develop the cultural, religious and nautical tourism.

### **The Linz Trail Project: Archaeology and Tourism in Cooperation**

**Hana Hojerová** (University of South Bohemia, České Budějovice), **Jan John** (University of South Bohemia, České Budějovice), **Martin Pták** (University of South Bohemia, České Budějovice), **Václav Vondrovský** (University of South Bohemia, České Budějovice)

The poster presents the Linz trail project as an example of archaeology and tourism interaction. The backbone comprises a medieval trade route connecting town Linz (Upper Austria) and early medieval hillfort Netolice (South Bohemia, Czech Republic). The total route length exceeds 120 km. In the area of this trail, archaeological sites and historic buildings in the landscape are presented in situ (e.g. hillforts, burial mounds, castles, deserted villages). Most of the information was obtained by modern archaeological methods (airborne laser scanning, metal detector and aerial survey, small scale excavation etc.). The project benefits are twofold. Firstly it brings valuable scientific information concerning the researched area. Secondly it enables to present new findings as well as ways to present the archaeologist work to public. We hope that our approach will help to increase public interest in archaeological cultural heritage and thus also contribute to its protection.

### **Byzantine Fort in National Park - Obstacle or Opportunity**

**Tomislav Fabijanic** (University of Zadar, Zadar)

Built in the 6th century, Toretta fort is the most impressive monument of the Kornati archipelago (Croatia). It functioned as a whole together with the church of St. Mary (today an important pilgrimage site) during Late Antiquity and Middle Ages. This was probably a monastery complex of which the fort placed on a prominent position was used to store food, control the estate and to hide in case of danger. It was also an important link in the Byzantine defensive system. In 2011, a project of research and protection of the Toretta fort, the church of St. Mary and accompanying harbour was initiated: the first systematic archaeological project in the Kornati Archipelago National Park. This poster aims to examine the possibilities and problems of cooperation between archaeologists and national park management. However, a specific feature of the Kornati National Park is the fact that almost all of the islands are privately owned so the poster will try to give an insight into the views and feelings of members of local community, especially those on whose properties the fort and the church are situated, and who would like to see some personal profit in tourist development of archaeological sites.

### **The Valley of Neretva River as an Archaeological-Touristic Attraction**

**Vasilj Snježana** (University of Mostar, Mostar), **Soldo Maja** (University of Zadar, Zadar)

The Valley of the Neretva River was from prehistoric times the main fluvial artery in Bosnia and Herzegovina, connecting the interior landscape with the Adriatic Sea and the Mediterranean. This touristic destination, for now not enough promoted, offers a rich choice of archaeological sites, dating from Prehistory (Badanj cave-paleolithic site, Daorson-center of Illyrian Daorsi), Roman Times (Narona, Gračine-roman military camp, villae Mogorjelo, Višići), Late Antiquity (basilicas Cim, Žitomislići, fortress Stolac) until the Middle ages (medieval fortresses like Počitelj). In Humac, Ljubuški a small museum existing since 1884 has an important prehistoric, roman and medieval collection. The continuity of occupation in this area from the earliest human past can be followed thanks to numerous archaeological sites, showing that the favourable position and mild climate had big influence on the continuity of the population. One of the interesting projects in the region is the establishment of an archaeological park and museum on the site of villa Višići, located at the delta of the Neretva River. The project could be an example for the development of touristic, infrastructural and economic potential for the country and the wider region. Many countries became touristic destinations thanks to the archaeological-touristic offer, because of the interconnection between archaeology and tourism obtaining a mutual benefit, development and promotion.

### **Maritime Residential Villa on Vižula Near Medulin, Croatia – A Step away from Vižula Archaeological Park**

**Kristina Džin** (International Research Centre for Archaeology Brijuni-Medulin, Ivo Pilar Institute, Zagreb)

After the founding of the IRCArc, Brijuni – Medulin in 1994, systematic archaeological excavation and investigation of the peninsula of Vižula started. Crispus, the oldest son of Emperor Constantine the Great, resided in the maritime villa until he was killed in 326 AD, according to the records (Ammian, 14, 1, 20). The discovered remains were built and used in four main phases from the 1st till the 6th century AD, and in intermediate phases. After archaeological investigations on the shore and under the sea, the story of the Vižula archaeological park continues. For the purposes of the project, we have created the Spatial and Programme Study of the Eco-Park of Vižula that proposes the basic concept of planning to help achieve two goals (to present the results of the conducted archaeological investigations and scientific knowledge and to present several



thematic interactive installations providing visitors with an insight into the everyday life of this antique villa). Therefore, the infrastructure has to be mobile and should be quickly and efficiently moved from one location to another. The proposed concept of the spatial planning of Vižula archaeological park will enable future visitors to walk through History and would also allow systematic archaeological investigations to continue.

### **Solutions for Sustainable Tourism Development: Case of Sunken City under Hazar Lake, Elazığ, Turkey**

**Çiğdem Özkan Aygün** (Istanbul Technical University, Department of Fine Arts, Istanbul)

Archaeological sites are an important tourism destinations for Turkey. Underwater archaeology is a new segment of archaeological research with high social interest, since the beginning of the first underwater archaeological survey at Yassı Ada, Bodrum in 1968. Turkey has a vast number of underwater archaeological sites which need to be explored, excavated and recreated as visitable areas developing also new tourism itineraries. Opening those areas for the diving tourism is also a sustainable way of preservation of those areas for the future but diving is not the only way to visit some of those areas with the help of the methods which will be mentioned in this article. The term 'underwater' is not restricted only with the findings under the sea but also the lakes, rivers and dams. This paper mentions about the underwater archaeological survey which has been conducted by the author since 2005 at Hazar Lake, Elazığ and the projects for the contribution to the economical status of the local people through sustainable tourism.

### **Unseen Istanbul, a Brandnew Tourism Itinerary: Ancient Cisterns, Wells, Galleries (Researches under Hagia Sophia, Topkapı Palace and Hippodrome)**

**Çiğdem Özkan Aygün** (Istanbul Technical University, Department of Fine Arts, Istanbul)

This reserach refers to the findings of the archaeological surveys directed by Çiğdem Özkan Aygün on behalf of Istanbul Technical University. The researches sofar covers the cisterns, water distribution channels/galleries and other water structures in the area of today's Hagia Sophia Museum, Topkapı Palace Museum, Istanbul Archaeological Museums and Hippodrome. This zone refers to the acropole of the ancient settlement and first hill of East Roman city. As well as a groups of archaeologists, architectst, civil engineers and art historians from Istanbul Technical University, a group of professionals from ASPEG (Anatolian Speleology Group), photographers and divers have contributed to the survey. We have utilized underwater and terranean ROV (Remote Operating Vehicles) for the inaccessible areas. The findings related to the subterranean of Hagia Sophia including 1km of galleries, related rooms, wells, hypogeum and the substructure under the nartex have been published lastly in *Bizantinistica Anno XII-2010* (Aygün Özkan, 2011) and in various publications by the same author. All of our publications can be found at [www.hagiasophiasubterranean.itu.edu.tr](http://www.hagiasophiasubterranean.itu.edu.tr). Our findings are being recorded under GIS (Geographic Information System) through which we wish to contribute to the tourism itinanaries of Istanbul city.



## **T02S008 - MANAGING ARCHAEOLOGICAL HERITAGE**

**Organizers: Ghattas J. Sayej** (Vest-Agder County Council, Kristiansand), **Donald Henson** (Institute of Archaeology, University College London, London), **Yvonne F. Willumsen** (Vest-Agder County Council, Kristiansand)

What is the value of archeological record if it will only end up in museum storage? What is the significance of preliminary reports if only a handful of people have access to it? What do archaeologists achieve if their only concern is publishing their materials in prestigious scientific journals? Is our main goal doing research? If so, for whom we are researching, who are our intended audience? Are we just aiming to communicate among ourselves about our discoveries and achievements? Questions like these lead us as social-scientists and as citizens in our respective countries to strive to educate and give the public the answers they deserve. Awareness is the key for understanding and protecting cultural heritage. Traditionally, people have to obtain answers to their curiosity by visiting museums or reading books. But it is equally important to present archaeological record outside the museum walls, back where the material culture were uncovered. Shared cultural heritage creates better understanding of the archaeological record, both amongst local societies as well as amongst visitors. But which method works where? Who are the target audience? Is it pupils, adolescents, adults, locals or tourists? Is there a joint method that covers all of the above mentioned audiences? Most likely the awareness among people increases when they get closer to archeology. In other words, being able to visit archaeological sites, talking to archaeologists while they are digging the site, or even participate in some of the archaeological activities, are the key issues for a better understanding. Kids of all ages are inquisitive and willing to learn new things all the time. And as the famous philosopher and educational reformer John Dewey said it: they love "learning by doing". Children have the ability to learn better by being a part of the told stories, and thus they can digest knowledge easily. Where do we want to impart cultural heritage; on site or via digital media and/or by written sources? Many archaeologists are keen to excavate and uncover archaeological records and have a limited budget to convey their discoveries directly to local societies. Shall we consider a portion of the excavations budget to communication? Different countries have implemented different methods concerning cultural heritage management and we wish in this session to open a debate about this issue and learn from each other's expertise.



## ORAL PRESENTATIONS

### **Crisis Management in Naqsh-e-Rostam and Persepolis World Heritage Sites: Excessive Subsurface Water Withdrawal and the Shiraz-Esfahan Railway Hazard**

**Masoud Rezaei Monfared** (Crisis Management from Isfahan University, Isfahan), **Seyed Abazar Shobairi** (Athens University, Athens)

Naqsh-e-Rostam and Persepolis World Heritage sites are among significant legacies remained from Achaemenid period (530-330 B.C) which is located at south east of Iran, Marvdasht plain. Crisis management and relating studies in these areas are one of the most fundamental issues. According to recent hydrologic studies, more than twenty meters of crust earth layers have been settled down due to drought and thousands of dug wells. Moreover, the developing modern structures and uprising novel civilization have been a drastic hazard in these sites. Shiraz-Esfahan railway projects is one of the examples. In our examination of case studies, we will try to have a new approach to crisis management regarding natural hazards and urban development adverse effects such as: drought, excessive subsurface water withdrawal and Shiraz-Esfahan railway project at Naqsh-e -Rostam and Persepolis world heritage sites. Key words: world heritage, Persepolis, Naqsh-e-Rostam, management, crisis.

### **Central Cappadocia Archaeological Sites in Destruction Example of Cultural Heritage**

**Atila Türker** (Nevşehir University, Nevşehir)

In our observations in Central Cappadocia in city of Nevşehir and in the archaeological surface surveys that we have realized in Hacıbektas district in years 2012-2013, we have witnessed the destruction of many cultural heritage elements. There is serious destruction in many archaeological sites in this region. The reason of this can be examined under two sub-headlines: "Unconscious Destruction" and "Intentional Destruction". The most common unconscious destruction is committed by agricultural activities of local farmers and by traditional residential construction. The most prevalent destruction is intentional destruction and the most important factor in that are treasure hunters and wrong and unwilling government policies. In this context, especially due to the interventions in settlement mound and monumental structures caused these archaeological assets to be left to their fates in the course of destruction before being discovered, documented and efficiently introduced. Apart from all these, the ethno-archaeological elements of the traditional assets which continue to exist today have great value enough to be discussed about under a separate sub-headline. The existing course of destruction of Hacıbektas region which constitutes the common heritage of humanity and which is known with very few systematic researches up to now is being exemplified under the scope of this article and the difficulties are being emphasized.

### **Raising Awareness of Heritage Research: Research Frameworks as Mechanisms for Enhancing Public Understanding**

**David Knight** (Trent & Peak Archaeology, York Archaeological Trust, York), **Blaise Vyner** (Blaise Vyner Consultancy, Stokesley, North Yorkshire)

Development of a research framework for the historic environment of the English East Midlands has raised many issues that are pertinent to the theme of this session. How can we raise awareness of research beyond the specialist arena? How can we encourage community involvement in discussions of research strategies? How do we foster collaboration between stakeholders? How do we maintain and develop research frameworks? How do we integrate archaeology and the built environment? Formulation of an agreed Agenda and Strategy for the East Midlands has presented some major challenges. To ensure wide-based support, we have liaised closely with community groups, university-based staff, museum professionals, local authority curators, consultants and all others with interests in the historic environment. We have developed an innovative consultative strategy, with a strong focus upon discussion workshops aimed at developing a consensual research framework. This collaborative work, funded by English Heritage, has provided the foundation for an on-line document, written with stakeholder input, which we propose be updated regularly by the historic environment community through the mechanism of a wiki. Attention is focused upon the strengths and weaknesses of this approach, obstacles encountered, lessons learned and means by which this consultative approach might be refined.

### **A Shift in Archaeology - From Seeing Science as a Goal, to Seeing It as a Means of Creating Values in Society**

**Eva Skjellberg** (Swedish National Heritage Board, Stockholm)

The demand for archaeological results is increasing, and archaeology has many audiences. However, the results have difficulties in reaching outside the archaeological world; to local governments, schools and science journalists. Municipalities tend to see archaeology as an obstacle to planning and development and not as an asset or benefit for the citizens. Schools are often completely unaware of the archaeology conducted in their vicinity. One problem is that archaeology rarely produces anything suited for many of the target groups. The dissemination of the archaeological results is a problem even

within the scientific community. This is mainly because the results are fragmented among a very large number of reports, papers or articles. Many interesting results only published in reports do not get much attention. Some improvement has been achieved in recent years. The new Swedish Cultural Heritage Act in force from 2014 states that information to the public can be included in the excavation budget paid for by the developer. A web-published database for all archaeological reports has been created. Some counties have made action plans for archaeology and target group analysis. My paper will discuss the difficulties that archaeology has in reaching society, as well as ideas and possible solutions.

### **Learning by Playing – Live Role Play as a Teaching Method**

**Emma Nielsen** (Archaeological Open Air Museum, Hønefoss)

Veien Cultural Heritage Park consists of a museum building, a reconstructed longhouse and one of Eastern Norway's largest burial grounds. Most of the finds date to the Early Iron Age – predating the Vikings by over a thousand years. Over the last few years the museum has prioritised children and particularly school groups as our target audience. Whether you use the phrase "learning by doing", "experienced-based learning" or a similar term, the fact remains that a deeper understanding is gained through participation, than simply through reading, hearing or observing. At Veien Cultural Heritage Park in Norway we have, therefore, chosen to use live role play as a method through which to involve 11 year old pupils in their local prehistoric heritage. This role play was created in 2011 and is now included as a mandatory element of the annual curriculum for all 6th grade pupils in the two local counties. This paper aims to present the many positive aspects of this method for the target audience, as well as the limitations. It will also outline the necessary aspects that must be in place in order for the method to be a success.

### **Whom Do We Dig for – On how to Make Real Archaeological Research Interesting for a Wider Public**

**Agnieszka Oniszcuk** (National Heritage Board of Poland, Warsaw)

Starting from questions on access to research results and our intended audience and a brief description of a lawsuit resulting from insufficient information on research results given to an investor, the paper will discuss how archaeologists in Poland see their obligation to inform the public if they do at all. It will also present some of the measures taken by the National Heritage Board of Poland and other institutions to bring archaeology in all its variety closer to the people, such as: promotion being an obligatory part of archaeological projects financed by the Ministry of Culture and National Heritage, out-of-museum exhibitions and online presentation. Activities of the NHBoP will be a basis to discuss the issue of a common perception of archaeology and archaeologists in Poland and our efforts to change it. As far as lessons learned, the paper will develop the issue of a two-way presentation of the results, which has to be taken into consideration from the very start of each project, and how difficult, or at least unobvious, it may be for a professional trained exclusively in science writing.

### **Crowd-sourcing, Crowd-funding and the Collaborative Management of Archaeological Heritage**

**Chiara Bonacchi** (University College London, London)

In recent years, heritage professionals have been increasingly and variously exploring the potential of web technologies for enabling joined-up approaches to archaeological heritage management, whereby experts and amateurs collaborate online. This paper will discuss the value and limitations of employing crowd-sourcing and crowd-funding methods to preserve and enrich archaeological resources and promote their public use, in different countries and for different audiences. The presentation will draw on existing literature and on the results produced by the evaluation of the MicroPasts project, undertaken by researchers at University College London and The British Museum. This project has been testing crowd-sourcing as a means of engaging existing communities of interest in archaeology (in the UK and the Levant) and a wider 'crowd' of contributors to co-produce archaeological data, use the latter to develop new research projects and micro-finance them. On the MicroPasts web platform, people can transcribe object cards, tag historical photographs, create 3D models of artefacts, discuss ideas for new projects and fundraise for them. This paper will assess the value/s that these kinds of involvement have for the people who contribute their time, knowledge and skills and for the institutions that participate by opening their storages and sharing their resources.

### **Children's Limyra**

**Zeynep Kuban** (Istanbul Technical University, Istanbul)

Limyra, an ancient town near Antalya in southwestern Turkey, has been excavated for about forty years by a team of German and Austrian archaeologists. Set in a naturally beautiful landscape, Limyra lies exactly in the center of the modern village, Saklısu. The villagers do not feel culturally and emotionally attached to the site because they were placed at this location by the government in the 1950s. Originally goat and sheep breeding semi-nomads, the current settlers adapted themselves to greenhouse farming which increased the land use and expanded over to the historic site. Problems have increased over the years, because of illegal use of land and expropriations. Misuse of the archaeological monuments, bad

waste management and lack of interest in cultural heritage make this place desolate. The project entitled “Children’s Li-myra”, realized since 2011 by a team of undergraduate and graduate students of architecture and history of architecture from the TU-Istanbul, wants to change this. Workshops for the village children, aged 5-13, connect theatre, music, dance, mask and puppet making, drawing and various other handicrafts, with the notion of the local history- as a continuous flow from the past to the future. Hopefully these children will become responsible grown-ups.

### **Reaching out to the Public in the Museum of Copenhagen, Denmark**

**Magda Lyne** (Museum of Copenhagen, Copenhagen)

The importance of involving the public in archaeological activities is now clearer than ever. With development having impacts on heritage, archeology is in the spotlight, and considered by many to be an interesting but expensive undertaking. Archeology should not be a discipline just for its own end. Showing how archaeology works, what it means, how it can change what we think about the past, are some of today’s basic tasks for archaeologists. A number of methods have been employed by the Museum of Copenhagen to make their archaeological work more open to the public. These include a mobile interactive wall, an open excavation, open days for the public on excavations, taking part in culture night, free archeological walks in the city, and so on. It’s clear from observing these methods that archaeology is interesting to some of the public, if presented in a modern and easily comprehensible way. Making archeology more public will have consequences - so what impact will that have on archaeology as a discipline? How does it change our profession? What is the best way to reach out to different age groups? And finally, how might archaeology gain from making itself more public?

### **Community Archaeology: Beyond Excavation, a Collaborative Community Approach to Interpretation**

**Ellie Graham** (The SCAPE Trust, St Andrews), **Tom Dawson** (University of St Andrews, St Andrews), **Alan Miller** (University of St Andrews, St Andrews)

The SCAPE Trust organises community projects at sites threatened by erosion; and interpretation projects that present results are always a key component. Our Virtual Histories project is an innovative approach that makes information accessible from four of our community excavations. Archaeological evidence has been used to create interactive 3D digital reconstructions of sites, and the realistic representations are available online and at local heritage centres. The archaeological record is interpreted within a computer game environment and speaking characters; embedded documents; images; and video tells the site’s story and the process of excavation. The models encourage ‘learning by doing’, with visitors exploring the virtual worlds and engaging with the content. Menus allow the presentation of different layers of information, ranging from quests that engage a younger audience to technical reports that enable examination of the evidence behind the reconstructions. Local communities have been involved in all stages of the process. They helped excavate the sites and made video and photographic records of the process. They have provided content, designed quests and feature in audio and video recordings. This project is an example of an exciting and original approach to presenting cultural heritage to the public that engages new and wider audiences.

### **Public, the Grand Inquisitor. Also a Friend. Case Study: Croatia**

**Sanjin Mihelić** (Archaeological Museum in Zagreb, Zagreb), **Ivor Janković** (Institute of Anthropological Research in Zagreb, Zagreb)

Although in the past Croatian archaeology has, arguably, successfully kept abreast the major players in the holy game of keeping the public at safe distance in matters archaeological, new social and cultural developments over the past decade or two introduced new rules into the self-protective mechanisms the discipline, that is, its practitioners had pampered with seemingly irreproachable care. The public matters after all, as the prevalent view nowadays seems to be, but it is an open question whether this change of heart would lead to truly enhanced communication with and participation by the uninitiated. The paper argues that at least a small portion of most archaeological activities besides those principally devoted to maintaining friendly ties with the public—read museums and related institutions’ projects—should be allocated to activities directly benefitting the understanding, and fostering interaction with, the grand Other of archaeology – the public.

### **Beyond Excavation: How the Active Participation of Young People Helps Save Our Heritage**

**Tom Dawson** (University of St Andrews, St Andrews), **Joanna Hambly** (The SCAPE Trust, St Andrews)

Scotland’s heritage is being attacked by the sea. With limited resources to combat the problem, we need the help of the public to prioritise action. Collaborative community projects at locally-valued sites aim to save information, as well as providing opportunities for direct involvement - making heritage more relevant. It is important to involve young people, the heritage managers of the future, in activities and the SCAPE Trust provides opportunities through the Scotland’s Coastal Heritage at Risk Project (SCHARP); community excavations; and via media projects. Young people actively learn through participation in our national monitoring project, SCHARP, using our mobile phone app and interactive website to record threatened sites. We encourage them to join our community rescue excavations, and in addition to hands-on digging op-

portunities, we provide them with video cameras. They record their on-site experiences and interview the dig team and other archaeologists –one example being the popular ‘Askaeology’ series of videos (see [pasthorizons.tv](http://pasthorizons.tv)). We also work with schools and colleges on painting, drawing and photographic projects; and have organised a national photographic competition for the under 18s. By directly involving the young in archaeology, we hope that they will value and invest in our shared heritage in the future.

## **Interacting with the Past: How Immersive Technologies and Artistic Interpretation Transform Our Ideas of Past Societies**

**Bodil Petersson** (Department of Cultural Sciences, Linnaeus University, Kalmar)

This paper argues that a combination of old as well as new immersive technologies involving all senses, in combination with artistic interpretation by involvement of artists not always relying on archaeological sources, can transform our perceptions of past societies and thereby lead to new and unexpected approaches and discussions on interpretation of past societies. This kind of collaborative experience has potential for renewing the experience of the past both among the general public and researchers. Immersive experiences with the aid of new techniques can be created in field situations as well as being located in museum contexts or even conveyed through the Internet. Even though archaeologists at times have discussed and understood the meaning of combining art and archaeology, the approach of combining art, archaeology and immersive techniques is largely unexplored among archaeologists today. With a conscious experimental approach in the artistic sense we can learn a lot more about ourselves and also about humans of other eras.

## **Let’s Tell a (Hi)story: ePub for Immersive Communication**

**Claudio Bendetti** (University of Pisa, Pisa), **Gabriele Gattiglia** (University of Pisa, Pisa), **Claudia Sciuto** (University of Umeå, Umeå)

Archaeological communication has the dual necessity of both scientific publication and the divulgation of results to a wider public. Often, however, the dissemination of said results becomes disjointed from the research per se, with the consequent loss of communicative efficacy, visibility and economic returns. Is a different model possible? Can we rethink communication as a dynamic and participatory organism allowing for real economic impact and a positive social budget? It is necessary to stop designing communication as a collateral effect of research and to see it as a variable itself within a shared input-feedback system. We propose a practical example of an immersive ePub. Our presentation shows a practical model and its workflow, highlighting key points and methodologies. This system allows for a continuous and direct information update as it is simultaneously connected to social networks, open data repositories and open access bibliographies. Researchers plan their communication strategy, modeling it on their respective data. At the same time, the ePub is designed to be completely adaptable to different users: archaeologists, professionals, students, and tourists. We have developed a demo on the city of Pisa during the Middle Ages, using raw and processed data collected in the framework of MAPPAProject.

## **Raising Awareness of Archaeological Heritage in the Tampere Region, Finland**

**Ulla Lähdesmäki** (Pirkanmaa Provincial Museum, Tampere)

Scientific archaeological research is necessary but not the only goal within archaeological field. The shared concern among archaeologists working in heritage management is how to activate more citizens to support the protection of endangered archaeological heritage. Raising the awareness of archaeological environment and enabling participation of protection work to different groups of people are in key position. In changing society with diminishing public resources archaeologists need to evaluate and question traditional protection methods and managing principles. In the Tampere Region, Finland, Pirkanmaa Provincial Museum develops methods of participation e.g. by carrying out an Adopt a Monument –program, by supporting a group of volunteers documenting archaeological sites and by giving guidelines to regional farmers organization in their survey work about protected medieval village sites in rural areas. The paper presents examples of raising awareness of archaeological heritage among different actors and discusses benefits and challenges of those activities.

## **Every Sherd is Sacred - Compulsive Hoarding in Archaeology**

**Raimund Karl** (Prifysgol Bangor University, Bangor)

Since the beginnings of prehistory as an academic subject in Germanophone countries in the late 19th century, a mostly unreflected, firmly positivist epistemology has been the foundation of our practice. This approach operates on the assumption that detailed observations of data, combined by inductive reasoning, will provide proof positive of ‘how the past actually was’. A necessary precondition for this is the completeness of observations. From this, it necessarily follows that every archaeological object is an infinitely valuable treasure that must be conserved forever. Only this can guarantee that observations remain repeatable. Industrial hoarding of material culture thus is a necessary consequence of our epistemological approach, as is our approach to the public: archaeology must be protected from, rather than made accessible to

the public. This paper demonstrates that archaeological collecting practices resulting from this approach cause suffering within the discipline, damage to the objects we try to maintain 'in perpetuity', and define our interaction with the public. It exhibits all diagnostic criteria of compulsive hoarding, a serious social functionality disorder: archaeology is, quite literally, sick and in urgent need of therapy if it is to fulfil its purpose to benefit the public.

### **Chinese “Big Archaeological sites”. From Policy to Practices: The Case of Luoyang**

**Bing Yu** (CACH, Beijing), **Luca Zan** (University of Bologna, Bologna)

The 11th five-year plan set up a huge project for developing a 100 Da Yi Zhi (big archaeological sites). This seems to be a unique policy within the international arena, both in terms of its own contents, and in terms of funds generously provided for the heritage sector. In very short terms, the Da Yi Zhi policy, more than simply adopting a merely professional lens in the development of heritage sites, is characterized by a multidimensional nature. The development of (new) archaeological sites is a complex policy with articulate goals of a different nature. While heritage protection was clearly the trigger of the whole initiative, the idea was also to give a new emphasis on interpretation, and at the same time improving the living conditions of people living close to these sites, improving environmental conditions, and looking for positive impacts in terms of economic development. While such an articulate set of economic and social goals would make any policy more complicated, this was a way to get a consistent amount of funds for the whole period. In fact, over the eight years from the issuing of the Plan up to now, a budget of 5 billion RMB was available (just referring to the central administration, the Ministry of Finance through SACH).

### **Learning by Doing - How to Get People Closer to Archaeology**

**Yvonne F. Willumsen** (Vest-Agder County Council, Kristiansand)

Awareness is the key for understanding and protecting cultural heritage. Shared cultural heritage creates better understanding of the archaeological record, both amongst local societies as well as amongst visitors. But which method works where? Traditionally, people have to obtain answers by visiting museums or reading books. As history is constantly developing, public archaeology must renew itself. People like to get involved and participate in activities, not just be passive audiences. In recent years, other communication methods have been implemented to create curiosity and present archaeological record back where the material culture was uncovered. This paper will present and discuss some methods from Scandinavia that have been implemented in public archaeology.

### **Cultural Heritage Management and Strategic Planning: The Greek Aspect of Archaeological Sites and Monuments**

**Evangelos Papoulias** (National and Kapodistrian University of Athens, Athens), **Peter Zounis** (National and Kapodistrian University of Athens, Athens)

In Greece the biggest problem in the field of culture has been the utter lack of strategic plans or studies for the development of infrastructures in main sectors of cultural heritage (monuments, museums, archaeological sites and projects, etc.). All the above has resulted in failure to use cultural wealth appropriately at national (central) and regional level, and in Greece missing out on opportunities in fields such as employment, tourism, protection and promotion of cultural assets for many years. Cultural Heritage needs management for its existence and development. Even if the ultimate goal is to preserve exactly as it is, with no public access to it, positive management is still needed to protect it from undesirable change or irreversible damage. No heritage strategy could be existed in isolation from outside influences. The future prospects that this paper will present pertain to a new strategic planning and targeting framework for the infrastructures which have already been created in major archaeological sites, monuments and museums in Greece.

### **Archaeology and the Power of Place**

**Taryn Nixon** (MOLA, Museum of London Archaeology, London)

When people connect with their heritage, there can be a deep, lasting and powerful impact. However, for many years, archaeologists working on schemes that arise through the planning and development process have found it difficult to create the level of public access to enable that impact. For example, it has been common for the priority to be on keeping archaeological excavation periods short and safe, and therefore to limit public access. In the recent experience of MOLA (Museum of London Archaeology), happily, there is a new trend. New Localism and Neighbourhood Planning policies in England now overtly encourage the public and local communities to connect with their heritage and to harness those connections to support positive, sustainable development. MOLA has developed a bespoke Archaeology Placemaking Blueprint as a tool to enable its developer clients to harness the power of participative archaeology to add lasting value to their own projects. This paper proposes to share recent placemaking experiences where the value of archaeology as a powerful force in placemaking and sustainable development is recognised by all parties involved.



### **A Case Study: Proposals for the Preservation of the Golden Horn Seawalls**

**Nisa Semiz** (Istanbul Technical University, Istanbul)

The Golden Horn Seawalls, prolonged along the northern shore of historic Istanbul, was influenced by the historical developments as the other parts of Istanbul City-Walls. During the Byzantine and Ottoman time, the fortifications had repairs and renovations. Then their military importance reduced considerably, and urban developments changed their surroundings. Moreover, beginning from the nineteenth century, some parts of the city-walls were damaged and even lost due to the modernization of the city. Only parts of the Golden Horn Seawalls have reached the present day. Surviving parts are located at different distances from the shoreline comparing with their first position lying directly on the shore or a short distance from the sea. Some remains have the wall with towers, at others, only a tower or a part of wall. Several gates opened to the shore but today only some are intact. As the important archaeological components of the historic city, the remaining parts of the Golden Horn Seawalls maintain its significance. In this study, the present situation of the surviving parts have been designated, and then the problems, that have caused more damages and losses on them, have been specified. With the results of this research it is aimed to develop the proposals for the management and preservation of these archaeological remains.

### **A Study in Grey: Grey Literature and Archaeology in England**

**Victoria Donnelly** (University of Oxford, Oxford)

Grey literature is the repository for a vast amount of data generated by archaeological fieldwork in England but which often languishes unread, un-investigated and ignored. While this relates, at least in part, to the poor accessibility of grey reports, could it also be that this 'problem' relates to the nature of grey literature itself? Professionals in different arenas of English archaeology have diverse ideas as to what grey literature should comprise; the output is highly variable and in many ways incompatible. Alongside this critique, however, the significance of grey literature in terms of yielding fresh archaeological data long before it reaches circulation in the form of published monographs is receiving increasing recognition. Recent research projects have attempted to synthesise the evidence from and foreground the tremendous value of this body of literature. As of yet, however, no detailed study of the character and interpretative worth of grey literature has been undertaken. Through a characterization of grey literature in England and the processes and practices through which it is created, this paper will consider how useful grey literature actually is, both for research purposes and more broadly.

### **Beeing a Child in the Stone Age**

**Silje Hauge** (Cultural Heritage Management Office, City of Oslo, Oslo)

In 2009-2010 a controversial development of an urban forest in Oslo triggered preliminary field surveys to investigate whether the plans of development interfered with archaeological heritage sites. The Cultural Heritage Management Office of Oslo executed these surveys that resulted in several finds of stone age sites in the area. As a strategy to raise awareness of this area as a source of knowledge of the past Byantikvaren (The Cultural Heritage Management Office of Oslo) invited local schools to experience a day in the forest, where the children both learned about the finds in the area and experienced different aspects of stone age life through activities such as making simple flint tools, shooting with bow and arrows, tasting food available in the Mesolithic and interpreting rock art motifs. As part of the project they were encouraged to see the landscape through new eyes, and reflect over where they would search if they were archaeologist looking to find stone age sites. About 600 pupils and their teachers participated in the project over a period of two years. This paper evaluate our experiences and the feed-back we got from the children as well as the teachers after they had participated in the project.

### **Disseminating Archaeological Knowledge**

**Mirette Modarress** (University of Oulu, Oulu)

Disseminating archaeological knowledge Mirette Modarress, University of Oulu The meaning of cultural heritage varies with different people. Universally, heritage has a role in the understanding of humans and society. In addition it can have regional and national importance; for local people heritage is connected to sense of identity, surroundings and belonging. If the information of archaeological research does not reach the public at large, the appreciation of archaeological heritage does not necessarily develop. For society, lack of knowledge about cultural heritage causes the destruction of archaeological resources in different ways (looting, construction etc.). It also leads to ignorance about the roots of present day society. Local people generally appreciate the efforts of research about their past when given the possibility for hearing and sharing the knowledge acquired by professionals. Heritage awareness of the public can be increased with methods like visits to the excavations, lectures, discussions and/or articles in newspapers and other media about the research and its results. These topics are discussed in this paper along with some examples from Iran and Finland.



### 3D Representation of the Urban Evolution of Braga Using the City Engine Tool

**Natália Botica** (Unidade de Arqueologia da Universidade do Minho, Braga), **Manuela Martins** (Unidade de Arqueologia da Universidade do Minho, Braga), **Maria do Carmo Ribeiro** (Unidade de Arqueologia da Universidade do Minho, Braga), **Fernanda Magalhães** (Unidade de Arqueologia da Universidade do Minho, Braga)

The morphological evolution of the city of Braga has been the subject of several studies focusing on different urban areas and in different periods. Using the accumulated knowledge provided by the available archaeological, historical and iconographic data of Braga, between the Roman times and the nineteenth century, we intend to present a working methodology for 3D representation of urban areas and its evolution, using CityEngine ESRI tool. Different types of graphic and cartographic data will be integrated in an archaeological information system for the characterization of urban buildings of different periods. Linking this information system to the rules of characterization of urban spaces through the CityEngine tool, we draw the 3D urban spaces and their changes. The building characterization rules include several parameters of architectural elements that can be dynamically changed according to the current information. This methodology will be applied to the better known areas within of the city allowing the creation of different and dynamic layouts. Considerations about the concepts, challenges and constraints of CityEngine tool for recording and representing urban evolution knowledge will be discussed.

### Managing Archaeological Heritage: A Proposal for the Sunken Medieval Settlement under Hazar Lake, Elazığ, Eastern Anatolia

**Çiğdem Özkan Aygün** (Istanbul Technical University, Istanbul)

This project is a result of underwater surveys directed by the author on the submerged medieval settlement under Hazar Lake (Tzovk-Dzovk), province of Elazığ in Eastern Anatolia. In the medieval ages, Hazar Lake is in the geographical area of Anzitene, laying at the south-west extremity of Byzantine Themes of Armenia IV. Dzovk is mentioned in The Cronicle of Matthew of Edessa as a fortified settlement which belongs to the Armenian katholikos. The Eastern Anatolian fault line passes under the Hazar Lake which is still active. Its activity and climatic reasons have caused changes in the water level. The circuit walls belonging to the medieval settlement are quite intact under the water. The soda water of the lake has been a great help to protect the remains because of the calcareous layer which has covered the surface of them which reduces the costs for conservation. The ideas for the management of the heritage have been developed for this project from the beginning such as; • Informing the locals and other target groups regarding this cultural heritage (the documentary is on air) • Supporting the local traditional production (pottery, silk weaving, leathersmithing) • Diving tours and transparent underwater lift for non-divers. The project's main risk is bureaucratic. The permissions are not being given to continue to the survey.

### Stakeholder and Participant Effect on an Archaeological Site Management Plan

**Nihan Kocaman** (Istanbul Technical University, Istanbul)

A management plan for an archaeological site should include identifying, involving and managing key interest groups (stakeholders and participants). Even though it is easier, in theory, to build up an organization plan with stakeholders and participants, it is very hard to succeed in practice. Unfortunately, not for all cases but in some cases, plans don't work as forecasted. The expectations of stakeholders and participants differentiate from expectations of management group or facts. At that time meeting at a point becomes the main body and success of the management plan. It is impossible to think of the archaeological heritage separate from the local population of the region where it is located. On the contrary to the archaeologists who spend limited time at the region when conducting research and excavations in the field, the archaeological ruins are a part of daily life for the local population who live there. Thusly, the researchers are spending their limited time and funding in order to determine the methods for the local population to preserve the heritage in their region. At this point, this paper will be the guideline not only for Daskyleion but will also shed a light upon those regions where preservation of the heritage faces difficulties.

## POSTERS

### Management of Cultural Heritage - Reflection from the Republic of Macedonia

**Vasilka Dimitrovska** (HAEMUS – Center for scientific research and promotion of culture, Skopje)

The independence of the Republic of Macedonia created the necessary preconditions for the transformation of cultural institutions. For the most part, the transformation meant decentralization of government-funded institutions. However, the law was not very helpful for the institutions, which came under the management of local governments not ready to take up this responsibility. Macedonian museums are burdened by the lack of management and by the politicization that occurred in the last 20 years. A complete re-evaluation of museums and providing them with the best possible management will be necessary to overcome all these problems. In 2013, in an attempt to transfer the artifacts from the old to the new building of the Archaeological Museum in Skopje, curators discovered one of the biggest thefts ever registered in Macedonia.

More than one hundred gold artifacts from the period of Antiquity were missing. This event calls into question not only the security, but also the overall management of cultural heritage. Instead of having these findings published in archaeological journals, they will probably end up in private collections, without any hope to become available to the public. This project is dedicated to the Macedonian museums and to every other museum in the world, which by the similarity of circumstances can be the subject of looting and destruction.

### **The Skopje's Holy Mountain, Republic of Macedonia**

**Vasilka Dimitrovska** (HAEMUS – Center for scientific research and promotion of culture, Skopje)

'Cultural Resource Management of Skopska Crna Gora Mountain', is a long-term project introducing this location both, to the science and the tourism sector. Cultural resources management (CRM) is the terminology unknown to the institutions in the Republic of Macedonia engaged in culture and cultural heritage. The detailed documentation of the Macedonian heritage is still the topic of many debates and its upcoming process. Due to its location in the vicinity of Skopje, Skopska Crna Gora Mountain provides magnificent pleasure in both, nature and cultural heritage. The landscape is intersected with many picturesque valleys and waterways, favorable climate lush in flora and fauna, and side by side village with authentic traditional architecture, beautifully vineyards, orchards, meadows and gardens with many sheepfolds and mills. Different ethnicities, reflecting the multi-ethnic and multicultural Macedonia, can be seen in the traditional folk costumes and clothes embroideries. The project consists of identification, evaluation, and conservation of archaeological sites and especially the enormous concentration of original Byzantine churches on such a small area, which gave the name of this location as the 'Holly' mountain of Skopje.

### **Managing Archaeological Heritage in Interventions of Minimization and Safeguard**

**Gertrudes Branco** (Universidade de Évora, Évora), **Leonor Rocha** (Universidade de Évora, Évora)

In the last decades, the archaeological activity in Portugal has witnessed a significant increase, mostly as a result of the economic development and the increment of public and private construction works. The increasing number of archaeological excavations, motivated by interventions of minimization and safeguard, has corresponded to a disinvestment in multiannual archaeological research projects. It is not uncommon that, for safety and agenda reasons, archaeological excavations carried out in a context of work do not offer the ideal conditions to be open to the public interested in knowing and accompanying archaeologists' work. In the same way, evidence shows that the acquired knowledge remains in the technical and scientific reports, poorly adequate to the dissemination of knowledge among the interested public. Another important question is related to the management of the wide volume of the assets collected during the archaeological interventions, which conflicts with the lack or shortage of museums and places devoted to their exhibition. These are kept under the possession of the directors of the excavations or in government deposits, inaccessible to public fruition and knowledge.

### **Orgame/Argamum in the Western Pontus: Archaeological Management of an Endangered Graeco-Roman City**

**Nutu George** (Institute for Eco-Museum Research of Tulcea, Tulcea), **Stanc Margareta Simina** (Alexandru Ioan Cuza University of Iași, Iași)

Located on the Razim Lake, in the proximity of western Pontus shore (in Dobrudja, South-East Romania), the ancient Greek colony and later Roman town Orgame/Argamum had a long and turbulent archaeological dossier. In the Interwar period, the city knows intense archaeological researches, but the buildings discovered during this period fall into oblivion and gradually decay. Three decades later, the researches were resumed and still on going. However, in this period less efforts were done for the preservation and exploiting the archaeological heritage for the general public. Over the years an immense archaeological and archaeozoological material was discovered, with excellent possibility of contributing to the educational programs and developing intense local-scale tourism. Archaeology, as well as connected sciences like archaeozoology, contributes to the development of the local communities in a sustainable way. Archaeozoological approaches offered evidences of diet, importance of husbandry, hunting and fishing in this Graeco-Roman city, and a variety of methods can be implemented for presenting these results to the public. This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, PN-II-RU-TE-2011-3-0146.

### **Roman Quarries in Today's Bulgaria. Research Opportunities, Socialization and Management**

**Zdravko Dimitrov** (National Archaeological Institute, Sofia), **Kamen Stanev** (Cyrillo-Methodian Research Centre, Sofia)

This study is a direct continuation of the report "Roman quarries of Philippopolis", presented by Dr. Dimitrov and Dr. Stanev in 2013 in Pilsen. This is the final product of a 2-year research project on the Roman quarries, funded by the Ministry of Culture. The team of archaeologists and geologists visited and mapped the quarries of Marcianopolis, Deultum, Abritus, Nicopolis ad Istrum, Oescus and Hadrianopolis (the last one are totally unknown). The main idea of the presentation will be to show the location of these amazing monuments of Roman culture in Bulgaria that are poorly explored and threat-

ened by modern investment intentions. Also important is the level of preservation of the quarries and derive from this management capabilities of this cultural and historical resources. What is needed is a national program for the protection, preservation, study and complete socialization of these attractive monuments of cultural heritage. They are also strongly emphasized in the tourist routes. At the annual meeting of the EAA in Istanbul, our team wishes to raise once more the issue and develop fully the problem of Roman quarries in Bulgaria, their current status and management options.

### **Digitising Woolley's Alalakh. The Glass Plate Negatives at the Institute of Archaeology, University College London (UCL)**

**Helene Maloigne** (Independent Researcher, London)

During in the 1930s and 1940s Sir Leonard Woolley excavated the Bronze Age capital of ancient Alalakh (Tell Atchana) in the Hatay province, southern Turkey, on behalf of the British Museum. The glass plate negatives used to record the excavation progress are now part of the archives of the Institute of Archaeology at UCL. The digitisation project of the images has revealed many previously unpublished photographs of the excavation in progress, sometimes allowing for a re-interpretation of Woolley's published work, and therefore helping the current Koç University excavation at Tell Atchana in understanding the work previously performed at the site. The images record the local workforce employed on the excavation, making it possible to engage the communities still living on or around the site in their history in relation to Alalakh. A virtual exhibition at the Archaeological Park newly opened at the site is being envisaged. The digital preservation of these images opens research into Alalakh up for a wider range of scholars and students alike by improving accessibility and conserving the fragile glass plate negatives in a sustainable way.

### **Medieval Agsu Town Archaeological Tourism Complex as the Model of Cultural Heritage Management**

**Fariz Khalilli**

A joint expedition of staff of National Academy of Sciences of Azerbaijan's Institute of Archaeology and Ethnography and National Museum of History of Azerbaijan started archaeological explorations in Medieval Agsu Town in March 2010 due to application of MIRAS and displayed ruins of the underground town having rich civilization. Tourism complex is created in the area and research is ongoing. The complex covers 40 hectare area. 4 archaeological excavation sites are the object of archaeological heritage and function as an open exposition for visitors. Display and inventarization of historical and cultural heritage, compiling of scheme, cadastre, register, e-database bank are essential actions for management of cultural heritage, promotion of historical and cultural potential of the area and generally in future development of the complex. In this respect the work has been launched on the description of monuments and exhibits found from the excavations in Medieval Agsu Town Archaeological Tourism Complex, their technical indicators, significance, preliminary and present situation, the level of destruction, folklore example, as well as e-database. Electronic enrollment of the finds fixed during the archaeological excavations is systematized. It is planned to divide natural and cultural landscapes. The basic points of the management plan includes: determination of property forms, tour routes; increasing number of resorts for audience, arrangement of tours within the complex by horse; archaeological expeditions for schoolchildren and volunteers.



### **T02S009 - ARCHAEOLOGISTS IN DIRE STRAITS. STORIES FROM THE FRONT LINES**

**Organizers: Stelios Lekakis** (CAA, Institute of Archaeology University College London, London), **Nota Pantzou** (Museum of Political Exiles of Ai Stratis, Athens)

The research and protection of cultural heritage in war time is a much discussed and heated topic among archaeologists, media and the public. It instantly stirs debates about ethics, decision making and effective action taking, shaking the foundations of archaeology. At the same time, the study of war sites and conflicts gains constantly ground with battlefield and conflict archaeology emerging as independent academic branches of the archaeological discipline. Yet we feel that there is a lot more to explore pertaining to the place archaeology, archaeologists and archaeological sites hold on occasions of political crisis and conflict. The proposed theme aspires to bring together examples that will illuminate the context, practicalities and implications of research i.e. surveys, excavations and studies performed, the function of archaeological sites and monuments and their tangible or intangible associations, the role that archaeologists voluntarily or involuntarily assume when political tension is looming and the impact of war upon their routine.

### **ORAL PRESENTATIONS**

#### **From Trenches to Sections - An Excavation in World War I Circumstances**

**Karin Reichenbach** (Centre for the History and Culture of East Central Europe, Leipzig)

The paper presents a very peculiar excavation situation at the site of a late bronze age hillfort in the outskirts of Breslau, Silesia (today Wrocław, Poland), during the last two years of World War I. Used as a fortification post within the area of

the eastern war front line a row of military trenches had been dug out, following by chance (?) directly the course of the prehistoric rampart while cutting it regularly. Thus the site became both a theatre of war and a place of scholarly interest. Based on the analysis of archival records it will be asked what strategies local antiquarians used to exploit the trenches as archaeological sections and what made this rather macabre setting turn into a successful excavation campaign.

### **“For These We Fought”. Digging the Land of Ionia after WWI (1919-1922)**

**Stelios Lekakis** (Research Associate CAA-UCL, Athens)

“(Dear Sirs)... Supervisors of some military units informed the Military and Political government that the Greek soldiers came across ancient Greek reliefs and inscriptions in many villages that they were camping or passing by ... used by the villagers in various ways and being subject to destruction; for that reason the director of the Archaeological Service ... and the stewards ... were sent to collect and dispatch the antiquities back in Smyrna, in order to be deposited in a great Museum for Asia Minor”. In these words K.Kouroniotes, the director of the Greek Archaeological Service in Asia Minor, reports on one of the projects that the Service was swift to establish and execute, on the lands of the occupied/liberated land of Ionia from 1919 to 1922. This paper discusses these projects and the dialectics employed that aimed to cultivate and solidify the Greek identity of the local populations in Asia Minor, referring back to the elitist narrative of the mainland Greece to its glorious past.

### **Archaeological Ethnography of the Battle of Aslıhanlar (29-30.August.1922): A Case Study of Public Archaeology, Visual Storytelling and Interactive Map Design**

**Can Aksoy** (University College London, Institute of Archaeology-Qatar, London), **Ziyacan Bayar** (Dokuz Eylül University, Graphic Design Department, Izmir)

Our research tries to seek the functions of visual communication design through the window of modern conflict and public archaeologies. Our site of experimentation is the field of the Battle of Dumlupınar, which took place in the triangle of Çal Köy, Allören and Yüglük villages in Kütahya between 29-30.August.1922. Our archaeological survey project in 2013, interviews with the locals, literary reviews and our observations of local myths and traditions that emerged after the war constitute the database of our presentation. We categorized them for the design project in order to form a narrative storytelling, so that the viewer could participate in the ongoing never-ending live process. Thus, through the new media, the design project tries to investigate the public perception of war and its effects on society after a long period. The project has been developed as a design identity and an interactive map around the data, and tries to surround the viewer with a well-designed historical timeline, which contains all of its findings in one interactive interface. The project aimed to use a new approach with the collaboration of archaeologists and a design team, and selected its medium as a modern era war site, which still has significant foothold in the collective memories of the Turkish and Greek people.

### **Ethics, Archaeology and Spanish Civil War: Three Stories from the Front**

**Xurxo Ayán Vila** (University of Basque Country, Biscay), **Alfredo González Ruibal** (Spanish High Council for Scientific Research, Madrid)

While exhumations are the most visible phenomena of the archaeological work related to the Spanish Civil War and post-war period, other activities developed simultaneously: amateur associations started cataloguing fortifications and other material remains from battlefields and archaeologists and heritage managers included Civil War sites in inventories and in cultural impact assessment projects. In addition, some war routes “through trenches, pillboxes and air-raid shelters” were designed by local authorities in collaboration with historians and archaeologists. Thus, the ethical issues involved in the archaeological study of the Civil War are not restricted to the field of exhumations, but relate to manifold scenarios with a diversity of stakeholders and memory practices. Our paper is divided into two parts: in the first one, we discuss some general ethical issues that confront archaeologists and anthropologists studying the Spanish Civil War and the subsequent dictatorship. In the second part, we examine three case studies related to different contexts of violence: mass graves, concentration camps and battlefields.

### **Bones, Ruins, Bodies: Doing Research in Contemporary Greek Conflict Sites**

**Katherine Stefatos** (Columbia University, New York), **Dimitris Papadopoulos** (Independent researcher, New York)

This paper addresses the tensions and experiences of archaeological and ethnographic fieldwork in conflict sites of the Greek contemporary past. Drawing on sites and cases from the Greek Civil War (1946-1949) and the military dictatorship (1967-1974) we discuss ethical and epistemological concerns and issues through our own experiences as involved researchers. The Greek recent past marked by large-scale conflicts, political polarization and confrontation has produced its own ruins and remains that continue to have an impact in personal and collective memory. Although often part of heated debates in Greek historiography however, rarely it has been investigated in its grounded, material dimensions. We are interested in what is left (human remains, ruined houses, exile prisons, military infrastructure) as linked to “subjects”

through bodily experiences, ethnic identities, gendered and political subjectivities. Any project of establishing such links generates an unstable ground of contestations, uncertainties and complexities bringing forward hard questions on truth and silence, trust and justice. Our aim is to highlight this unsafe ground as a field of critical, self-reflexive inquiry, crossing various disciplinary boundaries including archaeology, anthropology, cultural and political history.

### **The Dire Straits of Polish Modern History. Interdisciplinary Research on Victims of the Communist Regime 1939-1956**

**Marek E. Jasinski** (Norwegian University of Science and Technology, Trondheim), **Andrzej Ossowski** (Pomeranian Medical University of Szczecin, Szczecin), **Krzysztof Szwagrzyk** (Institute of National Remembrance, Wrocław)

After the WWII each European nation has shown an instinctive need to create or re-create its own modern identity, collective memory, national ethos and understanding of painful legacy of this war. Since the pain of one group or nation can be the shame of another, the inclusion or exclusion of particular aspects of the past can often be complex and controversial. In Poland, the changes in national and international politics after the fall of Communism in 1989 created a situation where national legacies and collective memories created under the pressure of the Communist Party has been challenged for at least the last 25 years. Research upon this subject often requires an interdisciplinary approach, where archaeology, physical anthropology and especially genetics have recently gained an important role in addition to the discipline of history. The Dire Straits of Polish modern history still divide Polish public opinion to a certain degree. Interdisciplinary research can fill up many gaps in our knowledge. However, it can also contribute to creation of new frontlines. This paper presents a general background of the issue and brings the results of an interdisciplinary project focusing on murdered members of Polish anti-communist resistance and their personal identification by DNA.

### **Archaeologists in Resistance: An Account of Archaeological Endeavours in 1940s Greece**

**Nota Pantzou** (Museum of Political Exiles of Ai Stratis, Athens)

In the 1940s, Greece experienced two wars and one military occupation: the Greek-Italian war (1940-1941), the Axis Occupation between 1941 and 1944 and a civil war from 1946 to 1949. This is a period when archaeological projects were halted, several monuments were destroyed, artefacts were looted and sites turned into barracks, battlefields, prisons, concentration camps or refuges. Yet there are more stories to be unfolded about this seminal decade for Greek archaeology pertaining both to the symbolic appropriation or function of sites and the role that archaeologists assumed in such a time of crisis. In the first part of this paper, information is provided about the loss and survival of cultural heritage and the narratives and legends surrounding it. Attention is then centred on the impact of war on archaeology practitioners and professionals. The aim is to depict how they experienced and resisted wartime hardships hoping that more light is going to be shed on unknown facets of archaeology.

### **Implications of the Latest War of 1992-95 on Sarajevo Cultural Heritage: The Formation of a New Dark Heritage**

**Marija Kamber** (MA Heritage Management, Kent), **Theofanis Karafotias** (University of Kent, Kent), **Theodora Tsitoura** (Athens University of Economics and Business, Athens)

Sarajevo bears a rich and diverse cultural past, which includes the three distinct periods of the Ottoman occupation (1463-1878), the Austro-Hungarian rule (1878-1914) and the Yugoslav Federation (1945-1989). The latest war of 1993-95 left behind numerous casualties while on the same time the cultural heritage of the city was destroyed deliberately in an effort to eliminate as well the collective memory of the civilians. Cultural, religious and historic landmarks were the main targets of nationalist extremists. The end of the war, though, left the city with new heritage features. Sarajevo's siege dark heritage today includes cemeteries, spaces of massive killings, war facilities and the tunnel that connected the besieged Sarajevo with Bosnian free territories during the siege. As many people consider this latest heritage as a point of conflict and controversy in post-war Sarajevo, this paper aims to present how authorities, local community and tourists approach this latest heritage. More precisely our goal is to explore issues of maintenance, presentation and interpretation with regard to this dark heritage that seems to serve as the only physical evidence that can preserve memory alive, prevent history of being re-written and pass it on to the future generations.

### **View from the High Castle. War, Power and Landscape of Ancient Babylon**

**Grzegorz Kiarszys** (Szczecin University, Szczecin)

Politics often refers to such values as national identity, past and continuity. In certain circumstances archaeological sites may become an instrument of power. The Babylon case study will be discussed in my paper as an example depicting such a problem. Due to political shifts that took place in Iraq in the last three decades of the 20<sup>th</sup> century, the landscape of Babylon was vastly transformed. Some ancient buildings were reconstructed and Saddam Hussein's palace was built



on the artificial mound. The meaning of Babylon was subjected to contemporary political needs. In the first part of my paper I will use satellite imagery to present the scope of landscape transformations. In the second part I will focus on the socio-cultural interpretation of oblique and vertical aerial photographs of the Babylon complex. I will present two different interpretations: the first will be inspired by the most popular explanations borrowed from phenomenological approaches in landscape archaeology. The second interpretation will take into consideration knowledge that cannot be obtained from simple interpretation of aerial photographs to show how even small things can dramatically change the interpretations that had previously seemed to be obvious.

### **Cultural Property Protection in the Event of Armed Conflict - The Work of the Blue Shield**

**Peter Stone** (Newcastle University/Blue Shield, Newcastle)

The Allied Powers in the Second World War acknowledged the importance of protecting cultural property by creating the Monuments, Fine Arts and Archives Sub-Commission (MFAA) – recently the focus of the film ‘The Monuments Men’. Unfortunately, the MFAA team was largely broken up at the end of the war and, apart from the production of the 1954 Hague Convention on the Protection of Cultural Property in the Event of Armed Conflict, the military – and heritage community – essentially forgot the importance of trying to protect cultural property during war. It was only following the disastrous destruction and looting that followed the war in the former Yugoslavia and the 2003 invasion of Iraq that the issue returned. The Blue Shield organisation was created in 1996 in an attempt to raise the profile of cultural property protection. Since then it has worked to influence the military and other relevant organisations as to the importance of this work. Progress has been slow. This paper outlines what has been achieved and what more needs to be done. Archaeologists will never stop war; but we may be able to have a limited impact on how it is waged and how it impacts on the heritage.

### **POSTER**

#### **Archaeology Under Mines: The Impact of War upon Bosnian Cultural Heritage**

**Aleksandar Jasarevic** (Museum in Doboj, Academy of Sciences and Arts of Bosnia and Herzegovina - Center for Balkan Studies, Sarajevo), **Melisa Foric** (Museum in Doboj, Academy of Sciences and Arts of Bosnia and Herzegovina - Center for Balkan Studies, Sarajevo)

Almost 20 years after the war, Bosnia and Herzegovina is faced with new challenges in protecting and resolving problems considering archaeological sites under minefields. Today, Bosnia and Herzegovina is a country in Europe with the largest area under minefields and a large number of archaeological sites is just located in these areas. On the one hand this situation prevents looting of archaeological sites and smuggling of archaeological artefacts; on the other hand because of the dynamic nature of this environment, many archaeological sites are subject to relatively rapid topographic change. Continuous erosion and the development of forests on archaeological sites threaten both the archaeological resources and our future ability to study evidence of past cultural dynamics. Quantifying the extent and magnitude of such change is important for monitoring and managing these archaeological sites. Another major problem is also how to deal with the risk that in this large area there are still undetected archaeological sites. In this paper, we suggest a cooperation pattern between professional archaeological institutions and institutions responsible for de-mining (BH Mine Action Center) to inform a continuous debate on whether and how controlled area under mines could operate and also to raise public awareness on the urgent need to protect and preserve cultural heritage.



#### **T02S010 - THE CARE PROJECT: AN ONLINE EFFICIENT RESOURCE FOR UNDERSTANDING EARLY MEDIEVAL EUROPE**

**Organizers:** **Jana Maříkova-Kubkova** (Blaise-Pascal University-Clermont-Ferrand 2, Clermont-Ferrand), **Pascale Chevalier** (Archaeological Institute ASCR, Prague)

The CARE project (Corpus Architecturae religiosae Europaeae / CARE - IV-X saec.), an international program initiated in 2002, intends to identify and catalog churches built in Europe during the first Millennium. 15 countries are involved, 6 other are interested. A joint team of French computer scientists and archaeologists created in 2008-2011 the online computer database shared in 4 languages (italian, spanish, german and english) – an annotated database using a Wiki interface (WikiBridge) and the semantic Web 2.0, with online inputs and queries in SARQL mode and a GIS for instant webmapping. The Corpus of textual and graphical data will gradually be known on the online database (<http://care.tge-adonis.fr>). Ultimately, this online scientific tool will facilitate comparisons, exchanges and discussions. Country teams work separately. The aim of this session is to allow them to gather these works in progress, to confront experiences, successes, problems with other searchers, in order to progress. The database, which allows an easy processing of different sets of documents, old or very new, such as photographs and 3D, is now tested for other types of data. Its flexibility and adaptability would make it easy to use for other periods.



## ORAL PRESENTATIONS

### The CARE Project - New Approach to Early Medieval Architecture in Europe

**Pascale Chevalier** (Blaise Pascal University-Clermont-Ferrand 2, Clermont-Ferrand), **Jana Maříkova-Kubkova** (Blaise-Pascal University-Clermont-Ferrand 2, Clermont-Ferrand)

The CARE project (Corpus Architecturae religiosae Europeae/CARE – IV-X saec.), an international programme initiated in 2002, intends to identify and catalogue churches built in Europe during the first millennium AD. The main task is to create a critical catalogue of buildings both within the frontiers of kingdoms built over the defunct Roman Empire, i.e. within the *limes romanum*, and the newly Christianized areas as in Central or Northern Europe. The aim of our contribution is to present the methodology, on the one hand, the difference in approach according to the nature of the site (abandoned single-layer sites, sites with strong continuity, with or without urban context...) and on the other hand, a unified approach to review and evaluate older research and to integrate new discoveries.

### CARE Isles: Eccles - Investigating Churches and Landscapes in England

**Thomas Pickles** (University of Chester, Chester)

CARE Isles – Early Christian Churches and Landscapes (ECCLES) is a collaborative project to record and disseminate information about pre-1100 churches in Wales, Ireland, Scotland and England. The aim is to emulate other CARE projects and produce an online resource – Early Christian Churches and Landscapes Inter-Active (ECCLESIA). This requires an assessment of existing research on pre-1100 churches in each region of the Isles. Each region of the Isles preserves different categories of evidence relating to churches. There are currently different levels of knowledge about those categories of evidence. There have already been various projects resulting in existing digital resources recording those categories of evidence that need to be harnessed. There are particular research strengths across the Isles that ought to be pushed forward through any digital resource. There is a range of stakeholders with potential interests in using the resource. This paper will consider the state of research on pre-1100 churches and landscapes in England, including the categories of evidence (textual, material, and linguistic) and the existing scholarship on churches and landscapes, to see what type of resource is required and how it might contribute to these research contexts.

### CARE Isles: Eccles – Pre-Romanesque Architecture in Scotland in Its European Context

**Sally Foster** (University of Aberdeen, Aberdeen)

In the Isles of Britain and Ireland where the evidence is so different from elsewhere, 'architecture' is best interpreted as the textual, material and onomastic evidence for churches, their associated ecclesiastical complexes, and Christian monuments, all in their wider landscape. This paper considers what dimensions of context to consider in researching the Scottish evidence, bearing in mind the key research questions for first millennium AD Scotland. The paper first reports on the findings of a Royal Society of Edinburgh-funded study that reflects on the specific nature of the Scottish resource, existing digital research databases, and scopes how best to work with the existing CARE databases. Secondly, the paper reminds us that in Scotland our early medieval period is part of a long Iron Age. How Scotland emerges from such prehistory to history is fundamental to understanding the process of its Europeanisation. It argues that a focus on pre-Christian and Christian cult practices holds the key to understanding the nature and outcomes of regional and local processes of conversion in relation to the highly varied pre-Christian landscape, and the role of elite behaviours in this transition. It explores how CARE can contribute to this.

### CARE Italia

**Gian Pietro Brogiolo** (University of Padova, Padova), **Miljenko Jurkovic** (University of Zagreb, Zagreb), **Alexandra Chavarria Arnau** (University of Padova, Padova)

A large group of Italian researchers has been working in this project since 2002 and has already published the first volume of the Corpus of medieval churches of the provinces of Belluno, Padua, Treviso and Vicenza, a second volume regards Trento and it is next to publishing Verona. It has also started the compilation on line of these churches using the WIKICARE system (<http://147.162.44.131/care/>) conceived by the French partners. For the Italian team the corpus is not an end in itself, but is the starting point for a series of different multidisciplinary research: (a) construction techniques in relation to the building process; (b) on the secular and ecclesiastical commissions; (c) building of different types and their meanings in relation to liturgy and functions; (d) the relationship between places of worship and the settlement network. Topics investigated through a plurality of sources (written, epigraphic, archaeological, artistic and historical) and with different disciplines, including archaeology, architecture, archaeometry, isotopic analysis and anthropological study of the people who used these buildings as burial places. From these studies the churches are confirmed as a vital point of reference in the reconstruction of economic, ideological and cultural aspects of a complex society in transformation.

## Church Architecture in Istria up to 1000 AD – The Most Recent Contributions of the Corpus

**Ivan Matejčić** (University of Rijeka, Rijeka)

The small Istrian peninsula is extremely rich in examples of Late Antique and pre-Romanesque church architecture, and even more impressive is the amount of in situ preserved material remains. Some churches built during the first millennium, minimally altered, are still today in a regular cult function. In the last thirty years, many churches have been excavated, and valuable information about building layers came out into the open during restoration works on existing monuments. Striking are recent findings that bear witness to the original appearance of Early Christian buildings (St. Nicholas in Pula, mid-6<sup>th</sup> century), as well as to their contractions during the medieval period (transformation of the northern Euphrasiana basilica in Poreč, 5<sup>th</sup>-8<sup>th</sup> century). Besides the new physical finds, the corpus of historic architecture is gradually supplemented with the help of data from written and graphic material dating from the 18<sup>th</sup> and the 19<sup>th</sup> century – a time when the preservation of the oldest church buildings was significantly better (drawings from 1788 of Istrian churches by Leon Dufourny in the Vatican archives; blueprints of the church with a baptistery near Poreč in Zagreb archive; sketches by Pietro Kandler and Camillo de Franceschi in Rijeka; drawing of an old church in Bale made in 1882 by Antonio Deak from Pazin, etc.).

## Difficulties of Uneven Treatment of the Archaeological Record for the Use of the Care Database in Croatia

**Morana Čaušević Bully** (French School at Rome, Rome)

The paper will deal with a difficult question of the state of the accessible and existing, mostly graphical, but also factual documentation produced on the Early Christian and Early Medieval Churches in North-Eastern Adriatic. Furthermore, we will try to look closely at the incoherencies between the existing documentation and collected knowledge of those sites, and the CARE up-to-date forms. The aim of such a critical approach will be to try to overcome the difficulties in order to deal with the religious monuments of the northern coast of the Eastern Adriatic in an acceptable manner – balancing the exigencies of the data base and the current state of the research.

## Early Medieval Church Architecture in Slovakia: The Example of the Nitra Region

**Peter Baxa** (Monument Board of Slovak Republic, Bratislava), **Peter Bisták** (Monument Board of Slovak Republic, Bratislava), **Zuzana Borzová** (University KF, Nitra)

According to tradition, the Principality of Nitra, in today's Slovakia, came into being at the end of the 8th century. Around 833, its duke Pribina (800–861) was exiled by Mojmir I, duke of Moravia (+846) and his duchy merged with Moravia. Between 1048 and 1105, the duchy was governed as a county within the Kingdom of Hungary. The emergence of Christianity on Slovak territory is connected with the Principality of Nitra. St Emmeram's Church, founded before 829, is supposed to have been the residence of Nitra's archipresbyter. In 880, the diocese of Nitra was established, after 1000, Nitra became the residence of a chapter within the Archdiocese of Esztergom. The Benedictine monastery of St Hippolytus at Zobor, founded in the last quarter of the 10<sup>th</sup> century, holds an extraordinary position. The first reference to its property is known from the so-called Zobor Deed, issued in 1111. Several churches from the 9<sup>th</sup>–11<sup>th</sup> centuries have been found in the Nitra Region since 1933. The results of these excavations, which have led to the understanding of the Principality of Nitra as the first Slovak state, are currently being revised. Our paper presents the results of these researches and discusses possible re-interpretations.

## The Sacral Building with Three Apses at Devín: Possibilities and Limits of Interpretation

**Katarína Válová** (Archaeological Institute of Academy of Sciences of the Czech Republic, Prague)

Devín holds a very important position in Slovak state-formation theories. In the 1920s, remains of a stone building have been uncovered. Its ground plan, consisting of an elongated nave and three-apsed choir, seems extraordinary in the context of Central Europe. Its dating, function, and origin have been the subject of vivid discussions over the past 100 years. In 1980, a re-excavation revealed six graves from the Great Moravian period in a distance of only 8 metres, thus supporting a dating of the building into the 9<sup>th</sup> century. What is the architectural type, and where does it stem from? What is the cultural setting of this building? Can it be explained in the time frame of Great Moravia or do we have to consider a Late Antique tradition? The paper discusses the possible answers to these questions.

## Libice nad Cidlinou. Archaeological Excavations of Early Medieval Architecture

**Jan Mařík** (Archaeological Institute of Academy of Sciences of the Czech Republic, Prague), **Petra Maříková Vlcková** (Archaeological Institute of Academy of Sciences of the Czech Republic, Prague)

The Early Medieval stronghold at the site of Libice nad Cidlinou belonged among the most significant centres of Early Medieval Bohemia. Archaeological excavations conducted at the beginning of 1950s unearthed at the inner bailey of the site, among other structures, also remains of a stone Early Medieval church. The structure with a longitudinal and a transverse aisle can be assigned to the so-called Saxon Ottonian architecture style and in the Early Medieval Bohemia represented a truly unique construction. The paper will present results of revision archaeological field works that concentrate beside the remains of the church also on its setting and function in the context of the entire site. The paper is based on comparative

studies of newly published surveys of Saxon Ottonian architecture, processing of archival sources, and several seasons of systematic non-destructive and revision archaeological fieldworks.

### **St. Peter and Paul's Rotunda at Budeč (CZ)**

**Pavla Tomanová** (Charles University, Prague)

The St. Peter and Paul's Rotunda at Budeč represents an outstanding example of early medieval church architecture in the territory of the Czech Republic. The rotunda was founded in the late 9th century as the duke's court chapel at the Budeč stronghold, being also the third church built in the nascent Přemyslid state. Although the appearance of the rotunda was slightly modified over the following centuries, its nave stands fully preserved up to the present days and represents the oldest original stone building in the Czech Republic. Accordingly, the rotunda became subject of several structural surveys as well as archeological research over the past century; however a complex assessment of the rotunda is still missing. Therefore, in my current PhD project, I am going to revise and synthesize the results of both types of the preceding research to fully understand the original shape and function of the church. In addition to, some modern geodetic measurements are to be conducted this year. Thus, the aim of this paper is to present the St. Peter and Paul Rotunda at Budeč in the light of the recent research and for the purposes of the CARE project.

## **POSTERS**

### **NW Croatia in Early Middle Ages – New Data from the Excavations at Crkvišće**

**Ana Azinović Bebek** (Department for Archaeology, Croatian Conservation Institute, Zagreb), **Petar Sekulić** (Department for Archaeology, Croatian Conservation Institute, Zagreb)

Located on the naturally protected strategic hillock superposed to the Mrežnica River bend, the site of Crkvišće is a typical hill fort from period of 5<sup>th</sup> and 6<sup>th</sup> century, characteristic for the present-day Austria, Slovenia and Bosnia and Herzegovina territory. The remains of the single-nave church with a semi-circular apse lies on the highest, northern part of the plateau surrounded by the stone walls from the north and the east side. The church is oriented east-west, measuring 15.17 x 7.41 metres, with a semicircular shallow apse and two entrances (one on the south and the other, the main one, on the west facade). In the chancel, a plastered subsellium is preserved in its full length, as well as the remains of the cathedra and sacarium or lavatorium, as well as the traces of the altar and altar-screen foundations. Inside the church we also find that the limestone floor and wall coatings were entirely preserved. Results of radiocarbon analysis of charcoal samples taken during the archaeological excavations confirmed the spatial organization of the chancel typical for the period of 5<sup>th</sup> and 6<sup>th</sup> century.

### **The Beginnings of Christian Stone Architecture in Bohemia: A Reconstruction of the First Building Phases of St. George's Basilica**

**Katarína Chlustiková** (Archaeological Institute of Academy of Sciences of the Czech Republic, Prague)

St. George's Basilica was founded by duke Vratislaus I before AD 921 as the fourth known stone church in Bohemia and main church of the country. Between 1900 and 1960, two profound renovations were undertaken, restoring its 'Romanesque' character and creating a showcase of architectural development. The reconstruction uncovered a number of subsoil fragments of the oldest building phases, now dated to the 10<sup>th</sup> century, the time of the foundation of the basilica. A by now obsolete methodology and documentation has led to the loss of important data, which now is being partially recovered by means of modern research. A variety of contradicting hypothesis on the building development have been published. A clear differentiation between sources and incriminatory theses may lead to uncertainties with the reconstruction of the oldest building phases. Those can be enlightened by a consideration of the functions of the then liturgical space, which at the beginnings was subordinated to the ecclesiastical administration of East Francia, to the diocese of Regensburg and the archdiocese of Mainz.



## **T02S011 - INCREASING HERITAGE AWARENESS THROUGH PARTICIPATORY PUBLIC ARCHAEOLOGY**

**Organizers: Veyssel Apaydin** (Institute of Archaeology, UCL, London), **John J. Jameson** (ICOMOS Committee on the Interpretation and Presentation of Cultural Heritage Sites-ICIP, Florida)

The increasing importance of encouraging a widespread understanding of the past has received a great deal of attention in recent years. This session aims to explore ways in which models of education programmes in Public Archaeology could be more effective in ensuring the protection of heritage sites. Increasingly, archaeological education programmes by museums, archaeology projects, or NGO's have tended to follow different approaches in order to protect and preserve heritage sites, highlighting many important issues such as engaging with indigenous communities, identity, and authenticity. Although heritage education programmes have not always considered their audiences in terms of their ethnic, social, and political backgrounds, it is important to pay attention to this multi-vocal element, not least in order to develop a more democratic and participatory archaeology. In order to be more effective in protecting heritage sites, approaches to public education and the ways in which they are implemented must contain multiple voices and be developed from "bottom-up"

rather than “top-down” in order to be reflexive and capable of evaluation in differing circumstances. Specifically, this session will explore archaeological education programs for different audiences that can lead to greater heritage awareness within communities in order to protect and preserve the heritage sites.

## ORAL PRESENTATIONS

### **Public Archaeology 2.0: Striving for Greater Participation, Multivocality, and Relevancy in Today’s Professional/Stakeholder Interface**

**John J. Jameson** (ICOMOS Committee on the Interpretation and Presentation of Cultural Heritage Sites-ICIP, Florida)

Recent decades have witnessed an increasing involvement of non-professionals in planning and carrying out archaeological and cultural heritage studies and public interpretation. Public archaeology is entering a new era; participatory culture models can be applied to the many ways that archaeologists are increasingly using collaborative approaches in working with the public. Successful programs empower and motivate lay persons to more active involvement in not only archaeological fieldwork but also interpretation/dissemination processes. As archaeology and cultural heritage studies become more publicly visible, and heritage ownership is claimed by the community as well as institutions and professionals, interpretation requires new conceptualizations. As power and knowledge is increasingly shared with local communities and heritage stakeholders, the evolving relationships and partnerships between heritage professionals and communities require innovative and collaborative methods to accommodate local interests and needs. This paper will cite exemplary collaborative approaches as well as the activities of evolving professional associations and publications dedicated to, and supporting, innovative and collaborative partnerships in cultural heritage management and interpretation.

### **Facilitating Archaeological Outreach and Education on a Grassroots Level Diverse Array of Activities**

**Meredith Langlitz** (Archaeological Institute of America, New York), **Ben Thomas** (Archaeological Institute of America, New York)

Almost 26 years ago, a group of archaeologists and educators discussed heritage education at a conference session entitled “Save the Past for the Future.” Since then the nature of heritage education has changed tremendously. While the idea of professionalizing heritage education is desirable, there are fewer opportunities for interested professionals and funding and resources are not easily available. At the Archaeological Institute of America (AIA), public outreach is part of our mission yet, with minimal human and financial resources we have had to be creative in designing programs with a significant and widespread impact. Since 2004, the AIA Outreach and Education Program has been expanding its efforts throughout the US, Canada, and around the world locally through our Local Societies, globally through programs like International Archaeology Day, and by forming collaborations with like-minded organizations to present joint programs. In this paper we will discuss these initiatives and present our latest endeavor—participation in regional and national Science Festivals. Through this discussion we hope to highlight the effectiveness of facilitating grassroots efforts to reach the largest possible audience through a diverse array of activities.

### **TrowelBlazers: Accidentally Crowd-Sourcing an Archive of Women in Archaeology**

**Brenna R. Hassett** (Natural History Museum, London), **Victoria Herridge** (Natural History Museum, London), **Rebecca Wragg-Sykes** (University of Bordeaux, Bordeaux), **Suzanne Pilaar-Birch** (Brown University, Providence)

Accidentally crowd-sourcing an archive of women in archaeology The TrowelBlazers project provides an example of how public participation can radically influence an archival heritage project. Conceived as a Tumblr site where a limited group could post content celebrating female archaeologists, geologists, and palaeontologists, we soon allowed ‘guest’ posts, which rapidly broadened the scope of our project. Through our participatory social media networks, TrowelBlazers became involved in STEM, feminist, and heritage actions. Contact with organisations promoting women’s involvement in science led to collaborations with broader feminist networks including The Women’s Room UK, Finding Ada Project, and Science Grrl alongside invited contributions to science education events (e.g. by the UK Environment and Science Research Council). Trowel Blazars hosted very successful Wikipedia edit-athons for Ada Lovelace Day at the Natural History Museum, London and took part in Brown University’s event. More importantly, the accessibility and frequently crowd-sourced nature of our content has allowed TrowelBlazers to directly engage with the non-academic public to promote awareness of women’s contributions to heritage to a much broader public through activities like a feature in a magazine for pre-teen girls, a video project with a performance artist who plays an idealized girl’s role model, and even a toy maker.

### **People Centered Bottom-Up Approach: Increasing Heritage Awareness**

**Veyssel Apaydin** (Institute of Archaeology, University College London, London)

The concepts of Heritage, Public and Education have been examined from various perspectives, and they have become very common study aspects in many parts of the world. However, these study areas still have many socio political issues and problems that need to be sorted out in order to be more effective during the course of increasing heritage awareness. These issues and problems developed over the years by misinterpretation or narrow-minded approaches to heritage

perception and education. For instance, ignoring the socio-political backgrounds of the communities, inconsideration of communities' voices and authenticity of cultural remains that also lead to manipulation, destruction and plundering of the heritage sites and remains. Therefore, the perception of protecting and preserving of heritage has not been well established within the communities of many parts of the world, and a gap has developed between sites and communities. Turkey is one of the countries where those concepts have recently been introduced. In this paper, I will focus on three heritage sites and communities-Çatalhöyük, Ani and Hattuşa-by exposing the reasons of the gap between heritage sites and communities, and finally will make suggestions how to solve the problems to increase heritage awareness.

### **The Future of the Syrian Archaeological Heritage after the War: Reconstruct of National Identity**

**Youseff Kanjau** (National Museum of Osaka, Osaka)

Syria has a diverse archaeology heritage in the sites and time periods extending to several thousand years as shown recent excavations by international projects in many sites in Syria. Now, due to the devastating war in Syria, which started about three years ago, affected the archaeological sites and museums, many of them have suffered from abandonment, destruction, vandalism, thefts and clandestine excavations; and by following the current events show that this occurred due to several factors, the most important military actions, but not only the reason, there is also another reasons not directly connected with military operations which we named (civic activities) which led to serious consequences by losing important parts of Syrian and world heritage. In both cases, it is clear that there is an acute lack of knowledge about the importance of national heritage. In this lecture we present the future strategy which we believe in their capacity in distribute the archaeological heritage awareness, which is based mainly on the role of museums as a major input to the reconstruct of national identity by connecting the Museum to all community like ethnic, social and religious.

### **The Heritage of Our Own: Raising Awareness on the Archaeological Heritage of Tokat, Turkey through Participatory Projects**

**Coşku Kocabıyık** (KU Leuven, Leuven), **Anıl Ilgaz** (METU, Ankara)

"The Heritage of Our Own" is an ongoing programme run within the framework of the Komana Archaeological Research Project (Tokat, Turkey). Its goals include help preventing further looting in the surrounding area, raise awareness of a shared past and contribute to change the perspective of the local communities about the archaeological fieldwork conduct on site. It further aims at fostering deeper commitment at the governmental level in promoting initiatives for the archaeological heritage in Tokat and its surrounding region. The project makes extensive use of Participatory Action Research (PAR) methodology, a nested qualitative approach that includes several techniques designed to foster democratic dialogue among the participants, through conduction of strategic conferences, meetings (focus groups, search conferences, brainstorming), workshops and in-depth interviews. Unlike other approaches, PAR is highly interactive and promotes individual participation to the discussion, and views participants as research collaborators rather than research subjects. This paper will present the results of three seasons of fieldwork (summers 2011-2013) that involved children and women of Bula, the village hosting the Komana project's excavation house. While this is still a work in progress, we would like to share our experiences and provide some insights regarding the advantages and limitations of the format with whom the research was conducted.

### **"Home Front and Its Legacies": A Pilot Project to Engage Volunteers in Recording Traces of the First World War Landscape in the UK**

**Emily Glass** (University of Bristol, Bristol)

This year marks the start of the First World War centenary, an occasion to be commemorated across Europe through remembrance events and research projects. In the UK there is great enthusiasm in the archaeological sector for community participation projects, situated within educational, research and practical frameworks. This paper will present the 'Home Front and its Legacies' pilot developed by the Universities of Bristol and York, with funding from English Heritage where the results were utilised to inform a UK-wide Council for British Archaeology scheme. Local volunteers used a pilot-recording system to choose, document and map Home Front places and spaces. This approach promoted collaborative working, the use of local resources and tested systems which were all critiqued by participants to provide feedback on the recording system and make recommendations for the future. In addition, the pilot was a mechanism by which landscape changes could be spatially comprehended, the site condition documented and any risks noted. These results were exported to local Heritage Environment Records and the English Heritage National Record of the Historic Environment. A national collection of Home Front data over the centenary would be of immense benefit to quantify and assess the remaining First World War resource in the UK.

### **Adventures with Community Archaeology Projects in Ireland**

**Ian Doyle** (The Heritage Council of Ireland, Longitude)

This presentation looks at engaging the community in a range of archaeological projects in the Republic of Ireland and is offered from the position of a grant giving governmental agency which has since its genesis placed a strong emphasis on community heritage projects. While the methods available to study the archaeological landscape have increased in com-



plexity, so too has the ability to use these to communicate meaningful insights into how our landscape has evolved. A key driver for many local communities is often a sense of place or a desire to learn more about a monument, place or landscape. A range of projects from the Republic of Ireland will be drawn on to assess key ingredients for successful projects, and to show how involving the local and wider community can provide opportunities to share information, build capacity, and in return gain local insights and commitment. It is argued that the Council of Europe Conventions on landscape and on the value of cultural heritage to society (Florence and Faro respectively) provide a stronger context for the involvement of the public in landscape survey and understanding and this represents a shift from previous Council of Europe Conventions and in many respects challenge traditional State practice.

### **Government-Assisted Return to Country: The Case of the Ngadjuri People in South Australia**

**Claire Smith** (Flinders University, Victoria), **Vince Copley** (Flinders University, Victoria), **Gary Jackson** (Flinders University, Victoria)

For many years, it was assumed that Ngadjuri people had died out in the Mid-North of South Australia. They had been moved off their lands and onto mission sites in other regions. Over the last 15 years the Ngadjuri have undergone a physical return to country. The national Indigenous Heritage Program has supported Ngadjuri people in the location and recording of their sites. This process has included stakeholder consultations, public meetings and an international conference. Through this process the Ngadjuri people have increased public awareness of the Mid-North as the traditional lands of Ngadjuri people and enhanced the protection and preservation of heritage sites in the region.

### **Local Archaeologies: From Community to Prehistory and Back Again**

**Evren Uzer** (University of Gothenburg, Gothenburg), **Feras Hemmami** (University of Gothenburg, Gothenburg)

Archaeology-people relations are often promoted through technocratic strategies for community outreach, informing people rather than interactively engaging them. This study explores possibilities for a mutual relationship through which archaeology and local community are introduced to each other. The ambitions are to challenge the conventional dichotomies between covered and uncovered, professionalism and local knowledge, prehistoric and contemporary. The case is Gamlastaden, located at the eastern side of the city of Gothenburg in Sweden, which has a current excavation site. The urban fabric of Gamlastaden lies over the ruins of Nya Lödöse (1474-1624) and integrates industrial, residential, religious and commercial areas. Today, the area is inhabited by people from different cultural backgrounds, mostly, recent immigrants to Sweden and embedded by small shops and cafes that reflect the diversity of the residents. Heavy traffic junction on the western area of Gamlastaden also separates it from the rest of the city. Strategic development projects will be implemented after the completion of the excavations to improve the social and physical conditions of Gamlastaden. As part of a larger research project, this study explores the “local archaeology” as multiple layers of histories, starting from the uncovered Nya Lödöse to the contemporary socio-spatial history of Gamlastaden.

### **Get'em while They're Young: Advances in Participatory Heritage Education in Croatia**

**Sanjin Mihelić** (Archaeological Museum in Zagreb, Zagreb), **Ivor Janković** (Institute of Anthropological Research in Zagreb, Zagreb)

The paper explores the dynamics of the relationship between cultural and archaeological heritage on the one hand and children and young people on the other, looking into educational aspects from the point of view of the national curriculum and school-based extracurricular activities, as well as from public-oriented activities of heritage institutions. Focusing on projected benefits for society, a line is drawn between a passive” model of education contrasting the communicator and the recipient, and an “active” or “interactive” model that fosters participatory activities through which children and young people become partners in heritage projects, taking on a much more active role in the integrated management of heritage resources than is generally reserved for them. The theoretical and methodological, as well as practical issues pertaining to the latter model are addressed based on a case study of the Neanderthal Trail Project.”

### **Engaging the Local Community and Stakeholders as a Strategy to Promote Participatory Approaches in the Conservation and Management of the Archaeological Site of Herculaneum**

**Christian Biggi** (Associazione Herculaneum, Rome), **Francesca del Duca** (Associazione Herculaneum, Rome), **Paola Pesaresi** (Associazione Herculaneum, Rome)

This paper discusses initiatives underway and recent efforts at the World Heritage Site of Herculaneum to open up the heritage system to greater participation by stakeholders so as to secure heritage benefits for both the ancient Roman town and the modern town that surrounds it. The Herculaneum Conservation Project and the Herculaneum Centre have been working to overcome complex problems at the site and Herculaneum has come to public attention for their approach to heritage conservation and management, often with interest in their potential repercussions for future approaches to heritage management in general. Amongst the initiatives underway is the redefinition of the edges of the archaeological park



thanks to an EU-funded urban regeneration project which will change the area of site that borders with the modern town, an area that has traditionally been economically disadvantaged and where the local community is generally disenfranchised. Working with local institutional partners and stakeholders we aim to promote greater awareness within the community about local heritage, to accompany the local community during the process of change which will take place with the urban regeneration project and last but not least to explore avenues for new opportunities and businesses in the area.

### **The SITAR Project: A Platform for Sharing Knowledge Society**

**Mirella Serlorenzi** (Soprintendenza Speciale per i Beni Archeologici di Roma-SSBAR, Rome), **Cristiana Cordone** (archaeologist of SITAR Project), **Federica Lamonaca** (archaeologist of SITAR Project), **Stefania Picciola** (archaeologist of SITAR Project)

The SITAR project, designed to support Rome's archaeological GIS, was launched in 2007 by the Soprintendenza Speciale per i Beni Archeologici di Roma. It is primarily meant to create and maintain up-to-date a web-based database which allows knowledge sharing on the archaeological heritage of Rome. The SITAR is a complex system that includes different kind of knowledge for the protection and enhancement of this heritage. In this paper we present the philosophical choices of the Project and the theoretical aspects of the dissemination of archaeological knowledge in order to sensitize citizens about their territory. We also describe how an archaeological remains, loaded with information, becomes a cultural asset that is part of the world cultural heritage. For this reason, SITAR offers a tool for the knowledge society, producing new specific and complex information. It is also a part of a research network that has been expanding with the collaboration of other public entities and programmes involved in the protection and enhancement of archaeological sites. Hence, the need to analyse and develop common languages that will enable greater integration between various systems based on different theoretical and methodological approaches.

### **Shaping Community Heritage. Synergies between Roman Barcelona Spaces and the Gothic Neighbourhood**

**Ana Pastor Pérez** (Universitat de Barcelona, Barcelona)

Nowadays we have lots of archaeological spaces placed in urban areas but, till which point are they integrated in their social context? This study has been carried out at the Gothic neighborhood (Barcelona) and its roman archaeological spaces (Pla Barcino). The relation between dwellers and sites is a fundamental tool to evaluate heritage (also during the assessment value process). Analyzing the major risks of the spaces through a Comprehensive Risk Management (ICCROM-CCI) and improving the relation between the inhabitants of the area we can walk on our way to a "Public Archaeological Conservation" of these urban sites. In fact, the creation of cultural positive externalities attached to the cultural capital makes a social benefit hard to measure for our authorities in economical terms. Benefits of these studies can help to save money to our stakeholders –that can invest in other affairs to increase the quality of life of the inhabitants- at the same time that improve the neighbor's knowledge and aptitudes. We also define and propose here the creation of a new concept: "Archaeological Gardens" to involve neighbors in our discipline and work.

### **Archaeology as a Social Practice. Promoting Non-invasive Archaeology and Heritage through Cooperation with Communities**

**Kornelia Kajda** (Institute of Prehistory at Adam Mickiewicz University in Poznan, Poznan), **Mikołaj Kostyrko** (Institute of Prehistory at Adam Mickiewicz University in Poznan, Poznan)

Archaeology is a field of knowledge that interests almost everyone. Many people like to watch TV programmes about archaeological findings, and find out about the recent excavations. This interest is strengthened when in the vicinity of their homes archaeologists appear and start their research. However, archaeologists themselves do not seem to be interested in this popularity. They do their work silently, and they publish (if they publish) the results of their research in journals that are not available to every man in the street. In our presentation we would like to stress that archaeology is a social practice and it should be done in the cooperation with the society, especially local communities. Based on a project titled: "Archaeology involved: society – past – remote sensing" we would like to show how archaeologists can cooperate with local community, what we can learn from it, and how we can change the social viewpoint of heritage, prehistory and the way we work. Another issue that we would like to raise is the social perception of archaeology/archaeologists. We would like to show how archaeologists are seen by the society and how we can try to change this perception through cooperation with the local communities.

### **"Parks for the People": Using Archaeology to Engage with Urban Heritage and Its Future**

**Sian Jones** (University of Manchester, Manchester), **Hannah Cobb** (University of Manchester, Manchester), **Melanie Giles** (University of Manchester, Manchester)

Public parks are important components of urban landscapes in Europe. In the UK, their origins lie in the nineteenth century 'park movement', which was a response to industrialisation and urbanisation. They were intended to provide green spaces

for leisure, exercise, and promotion of health. Once part of the urban landscape, however, public parks also operated as sites of social encounter, tension and exclusion. Although many urban parks have changed beyond recognition, they remain important sites for the negotiation of memory, identity and place, as well as a focus for ideas associated with health and access to nature. In this paper we explore how public archaeology provides a means to engage people with this heritage, whilst also promoting an investment in the future of urban parks. The Whitworth Park Community Archaeology and History Project uses archival, archaeological, and oral historical research to examine the changing role of the urban park. At the same time the project encourages community engagement and participation, through voluntary work, school workshops and public events. We argue that material heritage offers a unique opportunity to facilitate forms of community connectivity across time and space, allowing people to negotiate networks of belonging in complex urban landscapes.

### **Volunteer-led Archaeology on the Thames Foreshore...and Further Afield?**

**Elliott Wragg** (MOLA-Museum of London Archaeology, London), **Courtney Nimura** (MOLA-Museum of London Archaeology, London)

The Thames Discovery Programme (TDP) is a MOLA community archaeology project which records the fast eroding archaeology of the intertidal Thames in Greater London and has trained c.450 volunteers over the last five years. These volunteers comprise the Foreshore Recording and Observation Group (FROG), who are the eyes and ears of the project, regularly monitoring and recording the archaeology on the foreshore. Run by a small team of professional archaeologists, this is very much a 'bottom-up' project, where the fieldwork and education programmes are determined in response to the volunteers' feedback. Many of the FROG have since forged strong relationships with each other, the sites upon which they work and other local groups, resulting in a greater awareness of the Thames foreshore as an important archaeological resource both within and outside the heritage community. This paper looks at the evolution of the methodologies employed, both archaeological and educational, and presents key findings from the programme. Building on this model, the TDP is expanding to the English coasts with a new project, CITIZAN: the coastal and intertidal archaeological network. Though in its nascent stage, this paper will also introduce some of the key aspects of this new project. [www.thamesdiscovery.org](http://www.thamesdiscovery.org).

### **Social Integration in Archaeology: The Example of "History of Picote Settlement" Research Project**

**Daniela de Freitas Ferreira** (Research Center in Culture, Space and Memory - CITCEM, Porto), **Filipe Costa Vaz** (Research Center in Biodiversity and Genetic Resources - CIBIO, Porto)

In a time of great retraction in public and private funding of portuguese archaeology research, the project History of Picote Settlement (HistPP)" is carrying out excavations in a proto-historic and roman site in the village of Picote (Miranda do Douro, Portugal). This initiative was prompted by the town's sociocultural association "Frauga", with scientific support provided by the Department of Heritage Sciences and Techniques (DCTP), Faculty of Arts - University of Porto (FLUP), Portugal. The main goal of this project is not only to undertake archaeological investigation in the area of Picote but also to create social interactions between the community and its archaeological site and the region's cultural heritage as a whole. This social side is of particular importance since the region is one of the most economical depressed and aged areas of Portugal. Taking advantage of the archaeological site own history and its relation to the community (was shortly intervened in 1950), HistPP has carried out a series of actions aiming to promoting and engage social participation, such as public sessions of local history, photo expositions with the old digs photo archive and incorporating townsfolk into the excavation, side-by-side with master students from FLUP, undergoing field practice, among others."



### **T02S012 - THE GLOCAL VILLAGE: HERITAGE MANAGEMENT IN NON-WESTERN CONTEXTS**

**Organizers:** **Luke Godwin** (Cultural Heritage Systems and Strategies, Coorparoo), **Ian Lilley** (University of Queensland, Brisbane), **Willem J.H. Willems** (Leiden University, Leiden)

Heritage protection in non-Western contexts is gaining impetus owing to a range of factors including expanding urban and industrial development and growing interest in boosting heritage tourism as an economic strategy. Such protection is almost exclusively conceptualised and executed in Western terms, whether by expatriate actors or local authorities trained in Western ways. Yet in many regions, 'best practice' from a globalising Western perspective proves unworkable because it does not align with local concepts of the past and the way that material remains of past human action should be treated. This means that well-intended heritage protection programs, whether driven by expatriate concerns or local heritage agencies working in a Western paradigm, usually fail over the medium to longer term. This session considers how this problem might be overcome by translating local and global interests and approaches in ways that ensure that all parties are satisfied. This does not mean seeking unattainable 'perfect' solutions in which everyone gets everything they want. Nor does it mean seeking 'zero-sum', winner-takes-all outcomes. Rather, it means delivering "glocal" compromises recognising a range of priorities and giving everyone enough of what they need to demonstrate their points of view are taken seriously and given due respect.

## ORAL PRESENTATIONS

### **Glocal Perceptions of Cultural Heritage in the Pacific: A View from Palau and Queensland**

**Stephen Wickler** (University of Tromsø, Tromsø)

Recent research in Palau, Micronesia, on indigenous perceptions of cultural heritage evaluates historic preservation practices and examines alternative models for the management and preservation of cultural heritage. Historic preservation programs have failed to address the complex nature of cultural heritage perceptions due in part to the imposition of a Euro-American model with inappropriate non-indigenous structures and Western concepts. Alternative approaches to heritage preservation by local indigenous communities are presented. A research project initiated in 2014 will explore perceptions of cultural heritage in Queensland among Australian South Sea Islander (ASSI) communities that are descendants of indentured plantation labourers forcibly transported to Queensland from Island Melanesia in the 1800s. Although the ASSI have retained an identity as a distinct non-Western minority group, this has been overshadowed by concerns for both indigenous and settler communities within heritage management. In order to increase the visibility of ASSI heritage, it is necessary to identify and map culturally-meaningful landscapes and heritage sites that signify the identity of contemporary communities. Perspectives from Palau and Queensland provide the basis for an assessment of cultural heritage perceptions among Pacific Islanders from indigenous and minority group perspectives.

### **Improving Standards and Practices in Cultural Heritage Compliance in Latin America**

**Jeffrey H. Altschul** (Society for American Archaeology, Washington DC)

In August 2014, the Society for American Archaeology (SAA) convened a one-day meeting to discuss the cultural heritage management (CHM) policies and practices of development banks in Latin America. The meeting grew out of discussions held over two years between the SAA and the development banks in which both parties recognized the need to improve and strengthen CHM compliance with bank policies. The parties also recognized the need to hear directly from Latin American archaeologists and government regulators and to craft interventions that could be effective and sustainable in countries, many of which have weak CHM institutions and enforcement mechanisms. The meeting brought together representatives of the World Bank, the International Finance Corporation, and the Inter-American Development Bank, CHM regulatory ministries and agencies from various countries in Latin America, and Latin American archaeologists active in CHM to evaluate the status of current practice and to offer recommendations to improve that practice. This paper will present the results of the meeting and its preliminary recommendations.

### **Shared Heritage Activities: Trading Places and Exchanging Knowledge**

**Robert Parthesius** (New York University Abu Dhabi, Centre for International Heritage Activities-CIE, Leiden),  
**Nurcan Yalman** (Centre for International Heritage Activities-CIE, Leiden)

Approaches towards heritage management programs and capacity building have been traditionally dominated by Western-influenced perspectives. However, there is now a growing recognition that such programs need to implement more inclusive and alternative methodologies which strive for balance between both local and global interests, under the concept of shared or 'mutual' heritage. Over the past two decades, the CIE-Centre for International Heritage Activities has undertaken and developed many heritage programs which aimed to create a more local platform within the global context of UNESCO World Heritage Sites. In conjunction with Leiden University and New York University Abu Dhabi, the CIE has established a wide reaching network of students and young professionals, built up through numerous field schools and capacity building programs. The presentation will focus upon the heritage of European expansion around the Arabian trading routes in the Indian Ocean and their cosmopolitan maritime centres. The paper will also present and evaluate this approach which acknowledges the importance of local knowledge, intangible heritage, sustainability and international co-operation. We would like to share our experiences from working within various non-western areas, as an alternative methodology, to merge these two different perspectives towards heritage co-operation and sharing.

### **Safeguarding Canadian Rock Art - Towards a Methodology for Higher Education and First Nation Community Partnerships for Recording Rock Art in Canada**

**Nicole Beale** (University of Southampton, Southampton), **Gareth Beale** (Centre for Digital Heritage University of York, York), **Eleonora Gandolfi** (University of Southampton, Southampton), **Yvonne Marshall** (University of Southampton, Southampton)

This paper will present the initial results of the Rock Art Land- and Sea-scapes project on the Vancouver Island and the Gulf Islands. These islands are famous for their extraordinary rock art. Some are accessible tourist attractions, but most are in remote locations and often at risk. For First Nations communities, however, these petroglyphs are inseparable from people's lives, landscapes and seascapes. Our research brings digital recording and analytical techniques for use on both land and

underwater sites pioneered by the UoS, together with First Nations people through collaboration with Simon Fraser University (SFU) First Nations Department and the Intellectual Property Issues in Cultural Heritage (IPinCH) research initiative being developed at SFU. The project is working to create a digital record of the petroglyphs within their land-/seascapes, that can be accessed in accordance with protocols developed as part of SFU's IPinCH and with the assistance of University of York's Centre for Digital Heritage. The digital data can be stored, disseminated and managed by First Nations communities whilst simultaneously augmenting existing UoS technologies. As part of the project, we are training Canadian archaeologists and First Nations communities in the use of UoS methodologies and are employing the dataset as an entry point for designing new heritage management strategies informed by, and sympathetic to, First Nations rights, values and histories.

### **Mines of Inspiration: Twinning Sites and Glocalism**

**Simon Kaner** (Sainsbury Institute for the Study of Japanese Arts and Cultures, Norwich)

The concept of 'twinning' is well established in much civic thinking around the world, but is not commonplace in archaeology. This paper considers the epistemological challenges raised by the twinning of archaeological sites, and the possible framework such an approach offers for the broader dissemination of best practice in comparative archaeology and heritage management. As a case study we will consider the developing relationship between the Grimes Graves Neolithic flintmines in the east of England and the Takayama obsidian mines in central Japan, and the ways in which these two important archaeological sites are being used as the focus for cultural and educational exchanges between the contemporary municipalities where they are located (Thetford in England and Nagawa-machi in Japan). Although the Japanese example is familiar in many ways to 'Western' approaches, the particularities of Japanese heritage management (including Japanese archaeologists operating in non-Western contexts) offer an insight into how we can deconstruct the perceived 'Western' influence over theory and practice and the dichotomy between 'Western' and 'non-Western', and explore alternative models for engagement with heritage in 'non-Western' contexts.

### **The Development and Challenges of Archaeological Tourism in China**

**Qian Gao** (University of Barcelona, Barcelona)

The landmass called China today is the cradle of an enduring civilization that has held together a large but diverse population for millennia. Following the introduction of the economic reform policy, known as the "Open-door Policy" in 1978, tourism as an industry became politically accepted in Peoples' Republic of China (PRC) for the first time. Meanwhile, China's rich abundance of cultural resources, which had been heavily critiqued and attacked one generation before by the authorities, was renovated and promoted as cultural heritage. Archaeological sites, as an important component of cultural heritage, started to play a significant role in tourism. In 1985 China ratified the World Heritage Convention of UNESCO of 1972. Since then it has seen 43 heritage sites being included on the World Heritage List. One of the most pronounced phenomena in China's archaeological tourism development in recent years is that there has been a scramble to inscribe as many heritage sites as possible on the World Heritage List. In China, the World Heritage application has functioned as a highly political activity, which has had a strong influence on how archaeological tourism is practiced in China. This paper intends to discuss the influence of UNESCO World Heritage on Chinese archaeological tourism, using individual case studies.

### **Remote Sensing of the Archeological Landscape of Kandahar (Afghanistan)**

**Elena Leoni** (University of Bologna, Bologna), **Marco Belogi** (University of Padova, Padova)

Afghanistan has a renowned and huge archaeological heritage dating from proto-history to the modern era. Prehistoric, Indo-Iranian, Persian, Hellenistic, Buddhist, Sasanian and Islamic sites are scattered all over the country, which is still substantially untouched by modern urbanization. Thirty years of war has preserved it from any kind of development (although there were other direct threats), but now there is an opportunity to develop a new national historical awareness of this heritage while at the same time collecting more complete information about archaeological sites to be studied and preserved. Geographical Information Systems (GIS) at present are the main instrument available to assist in reconstructing past cultural landscapes and human demography. GIS offers the opportunity to combine data from maps, earth sciences, surveys and excavations. This kind of approach can be particularly useful in southern Afghanistan, where only scattered surveys and excavations were performed in the last century and where nearly thirty years of war and instability prevented archaeologists keeping track of the status of the archaeological landscape. While the return of greater stability in central-northern regions of the country has made it possible for archaeologists to renew fieldwork and even undertake some limited excavations, the southern areas are still largely inaccessible to researchers. The use of very high resolution satellite and aerial imagery provides an opportunity to understand the interactions between man and landscape through the reconstruction of environmental changes and their consequences on the settlement in this region. During 2013, Elena Leoni from Archaeological Department of University of Bologna was hosted by DAFA (*Délégation Archeologique Française* in Afghanistan). She carried out a preliminary feasibility study with the collection and uploading of text, maps and photographic material of Kandahar archaeological landscape. The study of Kandahar archaeological landscape through Remote Sensing can be considered a pilot in order to eventually carry out the realization of an Afghanistan Archaeological Atlas.

## POSTER

### Where are You Go? Reflections of a Spaniard in Ethiopia

**Jaime Almansa-Sánchez** (JAS Arqueologia, El Cabaco)

I cannot recall all the times someone asked me “Where are you go?” whenever I walked around an archaeological site in Ethiopia. Since the first day I put my feet there, post-colonial critique has been in my head questioning what I was doing and asking was there any better way to practice archaeology. Surprisingly, I found two different contexts, when no-one around cares about it, and when there is a strong connection with a site. Both cases have been difficult to deal with, but public archaeology helped to sort out a way. I have been very critical of the way most professionals and institutions have worked in the country, as I believe this concept of ‘glocal’ was never in their mind: I see them as forcing their interests against communities and local governments, with all kinds of pressures resulting from this. The experience, however, has shown me a way to work in which I find myself ethically covered and useful for the locals and heritage. This poster will distil all these thoughts into what I understand as the glocal village, or a “non-colonial archaeology.”



## T02S013 - DEFINING COMMUNITY ARCHAEOLOGY IN A GLOBAL WORLD

**Organizers:** **Suzie Thomas** (University of Glasgow, Glasgow, ), **Claire Smith** (Flinders University, Adelaide), **Sergiu Musteață** (State Pedagogical University “Ion Creanga”, Chişinău)

Community archaeology continues to emerge as a distinct sub-discipline of archaeology. It is proving to manifest itself and be applied differently in different places and contexts, and in many ways still has to be defined. This session will include presentations exploring the concept of ‘community archaeology’ from throughout the world, encompassing a wide range of approaches, each of which is informed by the local community and conditions. Contributors to this sessions will present case studies from Chechnya, Transylvania, Australia, Moldova, the USA and the UK among others. This global approach will contribute to and strengthen debates on the definition of community archaeology.

## ORAL PRESENTATIONS

### Community Archaeology or Archaeology for the Community

**B. Adisa Ogunfolakan** (Obafemi Awolowo University, Ile-Ife)

Community archaeology has been described as archaeology by the people for the people. The field is also known as public archaeology. Be it community archaeology or public archaeology, the question is, what role is the community playing in community archaeology or the role of archaeology in the community? This paper therefore tries to explore these questions from a recent ‘community’ archaeology carried out in Ikirun, Southwestern Nigeria where the community were made to participate in archaeological exploration and interpretation.

### Creating History “On Our Own Terms”

**Brendan Griebel** (Independent scholar, Nunavut)

Questioning the role of community archaeology in building Inuit understandings of traditional identity. In 1999, the Arctic landmass of Nunavut was designated as a new Canadian territory and Inuit homeland to be governed according to indigenous traditional practices and values. This has resulted in a highly political (and controversial) campaign to articulate a narrative of the Inuit past that can guide ‘distinctly Inuit’ policies and programs for the territory. As a recognized source of information about Inuit history, the discipline of archaeology has been unwillingly drawn into this charged conversation about who the Inuit were, are, and want to be. This paper will consider how a community-based approach can help Arctic archaeology take an active role in Inuit identity building despite the field’s colonial history in the North and profound wariness of political ideology. While community archaeology projects commonly emphasize collaboration between established communities, I question whether the approach can equally be used to foster social and political re-imaginings of collective identity. Citing examples from my experience with an extensive community archaeology program in Cambridge Bay, Nunavut, I outline how a community approach can help develop new conceptual and social spaces in which collective identity becomes less a politicized vision of the past than a product of contemporary Inuit experiences and memories.

### Working Locally and Communicating Globally (Virtual Communities)

**Ioanna Antoniadou** (Independent Researcher, Athens), **Eleni Stefanou** (Adjunct Lecturer, Athens)

The research on which this presentation is based, concerns an ongoing ethnographic project that collects life-stories, which are or once were centred upon sites designated as world heritage. Considering the vast changes that currently affect the composition of the locals who once inhabited archaeological landscapes (decease, migration, etc.), our position in the wide



spectrum of community definitions is yet to be established. Furthermore, the intention to disseminate the collected ethnographic material through an interactive website, accessible to a global audience, raises a further issue: how does a virtual community determine and re-adjust the contours of locality? Needless to say, the necessity to define and become aware of these ontological and epistemological foundations is crucial for any project that intends to create knowledge for the public. As such, it is our duty to tackle these concerns, if we are to consider how our community project manifests and applies itself.

### **Understanding Community Archaeology and Its Development in Two Northern European Countries**

**Suzie Thomas** (University of Helsinki, Helsinki), **Tuija-Liisa Soininen** (Museum Centre Vapriikki, Tampere)

This paper explores how community archaeology has come to be recognised and practised in two different settings. In the UK, 'community archaeology' has been a recognised term since the 1970s, and arguably has its roots in the antiquarian societies stretching back as far as the eighteenth century. In comparison, community archaeology in Finland has been taking place for a much shorter time. Despite notable contrasts, connected to legislation and different cultural norms, as well as other factors, commonalities can also be found, with experiences from one country sometimes directly informing the other. Within these parameters, the perennial debates around 'top-down versus 'bottom-up' approaches will be discussed, and specific case studies presented in order to provide elaboration. In particular the role and impact of the heritage professionals in community archaeology engagements, whether as identified 'community archaeologists', museum workers, or the academy, is scrutinised.

### **Roman Camps in the Middle of the Dialogue between Researchers and the Community**

**Andrea Chiricescu** (National Museum of Eastern Carpathians, Covasna), **Alexandru Popa** (National Museum of Eastern Carpathians, Covasna)

In Romania the terms of community and public archaeology are rarely discussed as we are still in search of defining these concepts. Meanwhile, the archaeological projects that involve public participation are emerging considerably. Specialists show large interest in tying communication with the communities through a dialogue that revolves around archaeological finds. Although public participation in archaeological projects is not a tradition in Romania our main interest is to encourage people to participate more than they do today. Thus, we are taking small steps in rising awareness among those local communities that live on or very close to a Roman camp, in the eastern part of Transylvania. In this purpose we are working on establishing a dialogue with both descent and non-descent local communities, by trying to involve them in the planning and carrying out of archaeological projects that are of their direct interest. In our case history and ethnic mixture and development of Transylvanian local communities play a very important role in defining community archaeology, in terms of establishing their ancestral link to a site. Our case study shows one of the ways the younger generation can be involved in discovering, interpreting and presenting a piece of local history.

### **Excavations in the Medieval Fortress Soroca: An Example of Community Archaeology (Republic of Moldova)**

**Sergiu Musteață** (Institute of Archaeology, Romanian Academy, Iași branch, Iași)

The local public administration initiated a rehabilitation project of the medieval fortress Soroca (Republic of Moldova) as part of cross-border project (Romania-Ukraine-Moldova). During 2012-2013 we did archaeological excavation inside and outside of the fortress, which could be considered a good example of community archaeology, professional network and using new research technologies. So, in my paper I will present various aspects of this experience: partnership between scholars, public administration and inhabitants, between archaeologists from different countries, cooperation with mass media, etc. At the same time, I will present the results of various archaeological surveys: magnetometry, archaeozoology, soil analysis, artefacts, constructions, numismatics, etc. At the end, will discuss the impact of our project on community and future preservation and cultural tourism developments.

### **Making the Past Accessible: Museum of Copenhagen**

**Hoda el-Sharnouby** (Museum of Copenhagen, Copenhagen)

The talk discusses the approach of the Museum of Copenhagen to include its inhabitants in the city's history through archaeology. One defined goal of the Museum is to create a new kind of dialogue with the society surrounding it. In connection to the museums archaeological area of responsibility the goal is to increase the interest in the archaeological investigations, and make the city's past relevant for its inhabitants. Introducing people to archaeological excavation methodology, letting them excavate and handle finds themselves has been a catalyst to spur the imagination of child and adult alike, providing them with a sense of ownership of their past. Through tours of the excavations, showing of finds, brief talks, city walks and lectures, the museum seeks to make the variety of narratives in the archaeology material visible. As an example, the major earthen works of the current Metro excavations, which has marred Copenhagen for the last four years, has gone from an annoyance to an attraction. Through public outreach the Museum has turned the archaeological findings into a way to assess the present and to reflect on the future.



## Community Involvement and Public Interpretation through Private Museums in China

**Qiaowei Wei** (Shanghai University, Shanghai)

Community Involvement and Public Interpretation through Private Museum in Community archaeology is the complicated and subtle topics, if not the most, in China, and hardly considers as a sub-discipline of Chinese Archaeology. Considering the current legislation of cultural heritage in China, the local communities can hardly get involved into the archaeological excavation and investigation in and around their lands, nor to explore their own interests on discovering and learning the past. The establishment and development of private museums in China, which found by private finance, in the last decades, however, proves the public awareness on protection of antiques, cultural heritages, and archaeological sites. Although archaeological excavations have to be fulfilled by the institutes associated to central or local governments, the private museum in China are relatively prominence in public interpretation and involvement in archaeological activities. This paper compares recent analyses of contributions of private museums in Zibo, a city in Northeast China, to previous works carried out by the municipal museum. The paper discusses how museums developed the participation and awareness of local communities and how the private museums build broader regional networks to ensure the public involvement and interpretation of local communities in archaeological activities.

## Blackfriary Community Archaeology Project

**Finola O'Carroll** (Irish Archaeology Field School, Trim), **Stephen Mandal** (Irish Archaeology Field School, Trim)

The Blackfriary Community Archaeology Project, Co. Meath, Ireland is a collaborative initiative between the Meath Local Authorities and the Irish Archaeology Field School. The object of the project is to investigate the archaeological remains of this 13th century Dominican friary, much now underground, and work with the local authority and local community to create a space where community and visitors alike can explore heritage and use the site in a mutually beneficial and sustainable way. Archaeology investigation is undertaken under licence from the Irish Government, and relevant permissions limit the level of access by the community. The project seeks to increase accessibility to the archaeology through public engagement at all levels. The practicalities of the project include identifying community needs, capturing the interest of the local community, managing the cost involved in excavation and post excavation process and bringing results to the public realm in an interesting and accessible format. Long term challenges include site interpretation.

## Community Rescue: Public Participation and the Management of Threatened Archaeology

**Ellie Graham** (St Andrews University, St Andrews), **Joanna Hambly** (St Andrews University, St Andrews)

Community The Scotland's Coastal Heritage at Risk Project (SCHARP) is a ground-breaking approach that combines community archaeology with the management and recording of threatened sites. Communities are asked to record eroding sites and an innovative web-based map presents 12,000 survey records to the public; encouraging them to edit, update and enhance this nationally important dataset. A pioneering smartphone app allows information to be updated on location and volunteers are trained in using the technology and in archaeological survey. The project also captures local value and community ambition for threatened sites, and twelve collaborative projects are being initiated at valued, yet threatened locations. This national project provides a model that can be developed around the globe. It works with communities to generate archaeological data which informs regional priorities and national policies, empowering the public to contribute to a national debate and helping rescue endangered heritage. This paper will present SCHARP as a case study, evaluating the project's methodology and the challenges faced by working at a national level. It will assess SCHARP's success in engaging different audiences, including island communities that are often perceived as 'remote', and will examine the concept of 'community archaeology' as encompassed by the project. ue: Public participation and the management of threatened archaeology (Scotland's Coastal Heritage at Risk).

## Critical Reflection on Cultural Heritage for Community Sustainability

**Max Hope** (University of Ulster, Derry/Londonderry), **Colin Breen** (University of Ulster, Derry/Londonderry), **Gemma Reid** (University of Ulster, Derry/Londonderry), **Marianne O'Connor** (University of Ulster, Derry/Londonderry)

Proponents of Education for Sustainable Development (ESD) argue that opportunities for critical thinking and reflection can aid the development of sustainable communities (Sterling 2001). Critical thinking involves identifying and challenging assumptions (and the social contexts that underpin them) and exploring and imagining alternative positions (Brookfield 1995). This type of learning is central to cultural approaches to heritage that stress that heritage interpretations are multiple and contested and reflect the values and positions of those who create them (Smith and Waterton 2009). This paper explores the hypothesis that opportunities for critical reflection on cultural heritage can promote ESD and make a contribution to community sustainability. It presents the findings of a yearlong community archaeology project on the island of Colonsay in the Southern Hebrides of Scotland. Qualitative research conducted with community members and archaeologists mapped different social groups on the island and their competing visions of sustainability and interpretations of archaeological heritage. Groups used this visualizing tool to aid critical reflection on the politics of island heritage,

and the paper evaluates the contribution this made to ESD and to community sustainability, and assesses the potential for transferring the approach to other community and heritage contexts.

### **Out on a Limb? Community Archaeology in Cornwall**

**Richard Mikulski** (Cornwall Council Historic Environment Service / Council for British Archaeology, Truro)

Archaeological and heritage conservation management in the UK is facing a crisis, with lack of funding, weakening statutory protection and a looming shortage in skills and knowledge capacity, all combining to increase the risk of a major degradation of our national and international heritage resource. The Council for British Archaeology recognises these threats and sees the Community Archaeology Training Placement Programme as a key strategy to addressing them. This programme has helped Cornwall Council's Historic Environment Service to continue to develop and support an increasingly wide range and number of community projects; incorporating a spectrum of activities including community excavations, specialist workshops, large-scale regional heritage resource surveys, local partnership-building and the development of resources and activities to support educational curricula. Outcomes of these projects and activities include new methodologies for (and resources to support) volunteer-led or 'crowd-sourced' projects; wider participation in archaeologically-derived projects; more diverse pathways to engagement with the historic environment; increased skills capacities within the local interest/volunteer sector; and enhancement of the curated historic environment record. This paper presents case studies considering the success and wider benefits to the communities involved. The paper discusses the future of community archaeology and possibilities for helping to increase its sustainability.

### **Community Archaeology in Egypt**

**Marta Lorenzon** (University of Edinburgh, Edinburgh)

Community archaeology is becoming more and more an important sub-discipline of archaeology as the involvement of local communities in their own past become a guarantee of shared interests and efficient on site preservation. In Egypt community archaeology in different forms has been part of the excavation since the last century, but only recently this have been integrated with education and a planned methodological approach which is based on communication, public lectures, training and possible employment. In those cases local communities became an involved partner of the archaeological excavation and in most cases help the investigation and interpretation of the past. Developing an effective community involvement in archaeology is also becoming a useful tool to fight looting and vandalism on Egyptian archaeological sites. Thus during political crisis the establishment of community archaeology should be a goal of each excavation and become part of the archaeological strategy to preserve the sites.

### **Long-term Development of Local African Archaeological Knowledge as the Pathway to Community Initiatives**

**Peter Schmidt** (University of Florida, Gainesville)

If there is a common thread that weaves together different yet successful genres of community archaeology, it is exposure to and understanding by community members of archaeological principles and the capacity of archaeology to impact identity and historical representations. Sonya Atalay has shown that communities without prior comprehension of archaeology require mentoring and exposure to the practices of archaeology, not to mention the development of trust and reciprocal relationships. Depending on the local history of archaeology, this may take years and even decades to develop. Heritage initiatives taken by communities in NW Tanzania were built on four decades of intimate engagement with archaeology: first as hosts, participants, and interlocutors in archaeological and cultural research; then as archaeological supervisors in regional research and as consumers and proponents of the power of archaeology to valorize local history; and finally as promulgators of heritage and archaeological initiatives that built on these prior experiences. These diverse backgrounds set the scene for an eruption of interest in reclaiming and revitalizing heritage sites and intangible heritage, leading to locally developed and managed projects designed to create enhanced economic and cultural well-being in a culture devastated by HIV/AIDS over the last three decades.

### **Islands of Memory: Community Archaeology and Sustainable Development in the Bahamas**

**Elizabeth S. Chilton** (UMass Amherst, Amherst)

Many approaches to community archaeology tend to essentialize notions of "community," "local," and "indigenous." In this paper we explore the issues that arise in places where there is a complex layering of immigrants, refugees, migrants, and the descendants of former slaves. We focus on a case study on the island of Eleuthera in the Bahamas. Here there is a complex web of "communities," from the descendants of the 17th-18th C English plantation owners, to the (eventually) freed African slaves, to the more recent immigrants, including American second homeowners and Haitian refugees. Important questions have arisen with respect to the relationship between the various heritage communities and the rich archaeological record on the island, which includes indigenous Lacayan sites, former plantations (which brought most of the island's African descent population), the more recent agriculture/industrial sites, and the ruins of the early to mid 20th

C failed resorts. Pressures for development have united many stakeholders on the island in their desire for sustainable cultural heritage management. Through an examination of this complex case study we hope to contribute to the burgeoning field of community archaeology.”

### **Archaeology Engaged in a Remote Aboriginal Community**

**Claire Smith** (Flinders University, Adelaide), **Gary Jackson** (Flinders University, Victoria)

This presentation traces the process of 25 years of work in the remote Aboriginal community of Barunga, Northern Territory, Australia. It moves from a conventional ethno-archaeological study of Aboriginal art to an engaged community archaeology that includes political activism, community service and life-long commitment.



### **T02S015 - DISCOVERING THE ARCHAEOLOGISTS OF EUROPE 2014 - WHAT IT MEANS TO WORK IN EUROPEAN ARCHAEOLOGY**

**Organizers: Kenneth Aitchison** (Landward Research Ltd, Sheffield), **Heleen van Londen** (University van Amsterdam, Amsterdam)

Discovering the Archaeologists of Europe 2012-14 is a project supported by the Lifelong Learning Programme of the European Union that has brought together participants from 20 European states. These partners have worked together to identify how archaeology is defined as a profession across Europe, who are the archaeologists of Europe and what are the bigger issues that are shaping professional archaeology across Europe. The previous Discovering the Archaeologists of Europe project (2006-08) focussed on worker mobility – whether archaeologists could move around Europe to find work – but this project has been all about coping with the changed economic times that the global crash of 2008 and the ongoing sovereign debt and Eurozone crises have brought to the profession. There is no single European story, however, and this session will hear how professional archaeology is functioning in many of the project partner countries (and papers are welcomed from beyond the boundaries of the project). This session seeks to bring together and welcomes papers from anyone who has anything to say about employment and training in professional archaeology.

### **ORAL PRESENTATIONS**

#### **Discovering the Archaeologists of Europe 2014 - The Results**

**Heleen van Londen** (University van Amsterdam, Amsterdam)

Analysing national reports from 21 participating national partners allows the results to be presented to the EAA Annual Meeting. The Discovering the Archaeologists of Europe 2014 Transnational Report, formally launched at this session, presents the results of this unparalleled exercise in terms of how many archaeologists work in each of the countries studied, what kind of work they do, how they are qualified, how well they are rewarded and much more. This paper will present snapshots and trends taken from the final report, which will be freely available after the session, and will look at how archaeologists, their employers and policy makers can use these data to make real differences to the nature of archaeological employment in Europe.

#### **Bosnia & Herzegovina: Creating an Archaeological “Profession” from the Ground Up**

**Andrew Lawler** (Cultural Heritage without Borders, Sarajevo)

This paper summarises the current state of the archaeological profession in Bosnia & Herzegovina (BiH), as well as perceptions of its role in wider BiH society. The main problems include the role of recent pseudoarchaeological excavations in forming public opinion, and the influx of metal detectors into the country following the 1992-95 war. Complex legislation proves to be a hindrance not only to archaeological research, but also to the profession with limited jobs being created for the graduates of the newly-created archaeology degree programmes at two universities in the country. Traditional job titles within the profession are maintained while excavation activities – as a result of both legal and economic factors – have decreased so as to be almost non-existent. As well as the lack of regulation of the archaeological labour force, there is no archaeological society of any form which could potentially coordinate cooperation, training and further education. With Bosnia & Herzegovina aspiring to join the European Union in the next decade, and thus acceding to any future policy created on the professional status of the ‘Archaeologist’, how does the country begin to approach the reconciliation of the profession’s current state so as to establish a functioning, regulated archaeological labour force?

#### **Discovering the Archaeologists of Europe 2012-2014. Case of Czech Republic**

**Jan Frolík** (Institute of Archaeology AS CR, Prague)

The paper will summarize the results of the Discovering project in the Czech Republic based on the collection of data during 2013. A comparison between situation in 2008 and 2013 will be made. There is a visibly high increase of the number of archaeologists (more than 20%) against a background of economic crisis. This piece of knowledge will be discussed.

## **From the Brick Promising Model to the Archaeological Crisis in Spain, Addressing the Turning Point**

**Eva Parga-Dans** (Universidad Técnica de Ambato, Ambato), **Felipe Criado-Boado** (Institute of Heritage Sciences, Incipit-CSIC, Santiago de Compostela)

In the 21st century there is a rising socioeconomic importance of the cultural sector and related labour market, 1.7% of the total employed population in the European Union worked in these activities in 2009. For this reason, scholars, politicians and practitioners are trying to quantify and understand the effect of these business activities. Within the cultural sector, this paper studies the Spanish archaeological profession, a complex and dynamic labour market in which its business activity had an extraordinary development after 1985 due to two main factors: the enacting of a law about protection and promotion of cultural heritage and the Spanish construction boom during last decades. However, the economic and financial downturn that began in mid-2007 led to the collapse of the real estate and construction sector in Spain, with a domino effect that reached the archaeological activity, having severe consequences in its labour market. This paper shows this reality through the results of a survey of Spanish archaeological firms developed in 2013, this activity has been supported by the project 'Discovering the Archaeologists of Europe 2014'.

## **Discovering the Archaeologists of Europe - Denmark**

**Ulla Odgaard** (Board member of the association of archaeologists), **Jette Rostock** (Board member of the association of archaeologists), **Jeanette Skaarup** (Board member of the association of archaeologists), **Anette Kjærsgård** (Board member of the association of archaeologists), **Maria Broholm** (Foreningen af Fagarkaeologer, Copenhagen)

Who is the average archaeologist working in 2013/2014 in Denmark? And what are the future perspectives for this archaeologist? This lecture gives an insight in the Danish labor market for archaeologists. It will describe how the Danish labor market is organized, in terms of who are allowed to perform the archaeological excavation work and how it is financed. As a partner in the European project DISCO (Discovering the Archaeologists of Europe), FaF (the association of archaeologists) has gathered information from Danish archaeologists and Danish institutions which employ archaeologists. The results given in this lecture reveal the average archaeologist of Denmark and the problems he or she (?) and the profession of archaeology face.

## **Ups and Downs in Slovenian Archaeology - From the Highway Back to the Gravel Road**

**Irena Lazar** (University of Primorska, Science and Research Centre, Koper), **Tina Kompare** (University of Primorska, Science and Research Centre, Koper)

Within the project Discovering the Archaeologists of Europe 2006-2008 and DISCO 2012-2104 projects about the archaeological profession in EU member states, Slovenia had undertaken a survey of active organisations from the archaeological field and their employees in the period between 2006 and 2013. The majority of information was compiled through personal questionnaires sent to all public and private organisations active in the field of archaeology. The definition of archaeologist in Slovenia, although not legally defined, is strongly marked by professional qualifications ensured by a suitable university education. The Discovering the Archaeologists of Europe 2012-2014 project is a follow up survey to document the changes that have appeared in the archaeological labour field in Slovenia, especially aimed at documenting the impacts of the global economic and financial crisis, as well as documenting and improving the sectoral identification and anticipation of skills and competence needs and their integration in vocational education and training (VET). The DISCO 2014 survey was undertaken by the University of Primorska, Koper. The focus of the lecture will be how to deal with the global crisis in Slovenian archaeology after highway boom construction and period of financial flourishing in the past 15 years.

## **Discovering the Archaeologists of Europe 2014: An Overview of Cypriot Archaeology Today**

**Elena Prokopiou** (Department of Antiquities, Ministry of Communications and Works, Republic of Cyprus, Nicosia)

This paper examines the archaeology in Cyprus, bringing together the results of the Discovering the archaeologists of Europe projects of 2008 and 2012. An overview of the Cypriot archaeology is attempted, with regards to the organisations that employ archaeologists and the profession of the archaeologist in Cyprus.

## **Discovering the Archaeologists of the United Kingdom: Trends**

**Doug Rocks-Macqueen** (Landward Research Ltd, Edinburgh)

While the Discovering the Archaeologists of Europe (DAE) is entering into its second round of gathering data the United Kingdom is entering into its forth project that looks at such data. Having conducted two similar projects in the decade before the first DAE project there is significant depth to the data available on the archaeologists of the UK. This paper will examine some of the significant trends observed over this longer time depth. Some of the trends that will be examined in this paper include: The gender distribution of archaeologists; Changes in employers of archaeologists; Ethnic distribution; Mobility of the workforce; Wages.

## Being an Archaeologist in Romania. Opportunities, Challenges and Perspectives

**Corina Bors** (National History Museum of Romania-MNIR, Bucharest), **Paul Damian** (National History Museum of Romania-MNIR, Bucharest)

The paper will present the data gathered and analysed in the framework of the DISCO2 Project 2012-2014 (Discovering the Archaeologists of Europe). It is for the first time that such a survey has been undertaken in Romania, although the history of professional archaeology in this country goes back more than 140 years. As a result, the report prepared by the National History Museum of Romania (partner in the above-mentioned Lifelong Learning Programme of the European Union) will answer a series of specific questions: how archaeology is defined as a profession in Romania, which are the main features defining the professional profile of an archaeologist in Romania and which are the connections and gaps while assessing these issues in a wider European context.

## Not as Bad as We Thought – The Positive Side of Pessimism Regarding the Archaeological Labour Market in Austria 2012-2014 and Its Drawbacks

**Katharina Moeller** (Prifysgol Bangor University, Bangor)

One of the results of the first Austrian Discovering the Archaeologists of Europe study, which was conducted in 2008, was the assumption that in the future more jobs would be lost in archaeology in Austria. Now in 2014 we would like to present the results of the second study which was conducted in 2013. One of the surprising results was that the number of jobs in archaeology in Austria is actually not as bad as Austrian archaeologists feared back in 2008. There are more jobs now than there have been in 2008, which given the original pessimism is a pleasant surprise. But this rise in jobs comes at a price, namely the average income which is now lower than it was before.

## Testing Times: The Roles of Third Level Qualifications, VET and CPD in European Archaeology

**Kerri Cleary** (Institute of Archaeologists of Ireland, Aberystwyth)

In the aftermath of the economic downturn archaeology across Europe has faced many different challenges in different countries. One such challenge is the ability to make the profession more relevant to labour-market needs. A related objective of the European Commission is the importance of equipping people with the right skills for the right jobs. This paper will explore the role that traditional third level qualifications play but also the increasing popularity of Vocational Education and Training (VET) and Continuous Professional Development (CPD). On the one hand there are increasing numbers of graduating students and on the other an established profession continuing to acquire new skills and knowledge. CPD obligations are common to most professions but how have archaeologists across Europe adapted to this challenge?

## Working Skills and Training Opportunities in the Archaeological Heritage Sector: Reflections from Greece

**Evangelos Kyriakidis** (Initiative for Heritage Conservancy, Athens), **Georgios Alexopoulos** (Initiative for Heritage Conservancy, Athens)

This paper will reflect on the findings of a survey conducted with archaeologists and other professionals directly involved in the archaeological heritage sector in Greece as part of the Discovering the Archaeologists of Europe 2012-2014 programme. The aim will be to discuss potential gaps between the skills and knowledge gained through studying archaeology and the working skills actually required when employed in the sector. Particular emphasis will be placed on requirements for further training and skills deemed by interviewees to be necessary for successfully fulfilling their tasks. The data gathered through this survey will be considered in the light of the current economic crisis both in Greece and globally in an attempt to identify strategies and mechanisms for coping with the existing challenges.

## DISCO 2014: A European Glance to Profile Italian Archaeologists and the Italian Archaeological Labour Market

**Elisa Cella** (Confederazione Italiana Archeologi, Rome), **Alessandro Pintucci** (Confederazione Italiana Archeologi, Rome)

The Italian participation in the second edition of “Discovering the Archaeologists of Europe – DISCO 2014” project has been for us the first occasion to analyse the archaeology sector in our country, from the point of view of both workers and enterprises. The collected data are helping us to profile the profession: freelance activity in archaeology is still seen as a new frontier in Italy, and it has never been investigated from A (education and training) to Z (job perspectives) before. DISCO 2014 gave us the chance to discover what it means to be an archaeologist in Italy today; as the recognition of professional archaeologists by the Parliament is something we are gaining only very recently, we have focused our efforts towards three main topics: in which way companies and workers have been dealing with the labour market in the past five years, without any legal recognition of the profession; if the economic crisis has really affected an already deregulated Cultural Heritage labour sector, and, lastly, how the archaeological world has reacted to the construction sector crisis.



## The Discovering the Archaeologists of the Americas Initiative

**Teresita Majewski** (Statistical Research, Inc., Tucson)

Taking inspiration from the successes of the ongoing Discovering the Archaeologists of Europe (DAE) initiative, the Society for American Archaeology (SAA) has taken the lead in planning for and implementing a similar program in the Americas. In 2013, the SAA established a task force to undertake research on the work required to carry out a project to gather, analyze, interpret, and share information on archaeological employment and education in the Americas and to establish a process by which the survey could be conducted periodically to examine the development of the profession longitudinally over time. The task force completed its report and recommended that a pilot study be conducted in order to better understand the costs, scope, and challenges of developing and implementing a comprehensive study. The SAA Board of Directors accepted the recommendation for the initial study and created a second task force to develop a scope of work/request for proposals to conduct the pilot study based on the broader scope defined by the original task force. This presentation details some of the commonalities and differences between the DAA and DAE initiatives and reports on the progress of the DAA program.

## Archaeologists in Slovakia

**Eduard Krekovic** (Comenius University, Bratislava), **Danica Stassikova** (Comenius University, Bratislava)

Slovakia is a small country and the number of archaeologists is up to 180. Most of them are employed in state institutions (the biggest is the Archaeological Institute of Slovak Academy of Sciences with circa 40 persons). The majority of archaeologists work in museums but mostly one person per museum. We have identified more private archaeological companies in comparison with previous Disco project. It seems that the global crisis did not influence the employment of archaeologist in Slovakia. There is less money for research but due to our Heritage law the developers have to pay for excavations before building activities.

## Historiography of Empire and Global Archaeology - How Discovering the Archaeologists of Europe 2014 Resonates Globally

**Kenneth Aitchison** (York Archaeological Trust, York)

Discovering the Archaeologists of Europe 2014 has come to a close, gathering information about archaeological practice in 21 European states, from Norway to Italy and from Portugal to Cyprus. What this has told us about contemporary employment has also told us a lot about the histories of how archaeology is organised and approached in all of these countries. There is no single European tradition, but there are very culturally-specific ways that the practice of archaeology is undertaken; different attitudes to engagement with the market are central, but there are further differences when it comes to issues like gender in the workplace, reward, and professional respect. This paper will review where similar work has been done elsewhere in the world – in Japan, in Australia, in Canada and in the United States – and will think about whether the way that archaeology is actually, physically “done” is so culturally embedded that it becomes a set of nationally unique practices that are on occasion exported, or is it truly globally comparable and if so how archaeologists around the world can all benefit from expansion, extension and repetition of this project’s model.



## T02S018 - ARCHAEOLOGY AND GEOPHYSICS: NONDESTRUCTIVE METHODS IN INVESTIGATION AND PROTECTION OF THE ARCHAEOLOGICAL HERITAGE

**Organizers: Dmitry Korobov** (Institute of Archaeology RAS, Moscow), **Jörg W.E. Fassbinder** (Bavarian Archaeological Survey, Munich)

The proposed session is devoted to the application of geophysical prospection in archaeology as an important tool for investigation, reconstruction and protection of the archaeological heritage. Recent development of geophysical technologies such as magnetometry, GPR, electric and electro-magnetic measurements leads to discoveries of new sites and even new cultures in different parts of Europe. Such field survey could be supported by Remote Sensing data and GIS application that forms new possibilities for nondestructive approach in archaeological science. Thus geophysical prospection could be considered as one of the most valuable method in modern archaeological field investigation. The case studies of application of geophysical survey on different types of archaeological sites as well as other nondestructive technologies such as aerial reconnaissance, satellite images and LIDAR are expected in frameworks of the proposed session.

## ORAL PRESENTATIONS

### Application of ROV, Subbottom Profiler and GIS at Archaeological Surveys: Cases of Hazar Lake Sunken Settlement and I. Hill of Constantinople: Hagia Sophia, Topkapı Palace and Hippodrome

**Çiğdem Özkan Aygün** (Istanbul Technical University-ITU, Department of Fine Arts, Istanbul), **Caner Güney** (ITU Civil Engineering Faculty, Geomatic Engineering Department, Istanbul)

The paper will be about the two archaeological surveys which have been conducted by the author since 2005. The un-



derwater archaeological survey under Hazar Lake Elaziğ in Turkey was the first and only research related with the sunken medieval settlement at that region. Our mission was recording of this submerged medieval settlement which is not mentioned or photographed anywhere in the literature. The second archaeological survey was conducted at the First Hill of Istanbul including the area of Hagia Sophia, Topkapi Palace and Hippodrome. The aim of the research has been to find out the historical water supply system at that area including the research of the structures like cisterns, supply channels, water towers, water chests etc. Non-destructive methods were used for both of those surveys. Sub-bottom profiler, underwater ROV and GIS were utilized to find out and record the underwater findings at Hazar Lake. Even the architectural remaining under the sand was possible to be discovered without an excavation through the help of sub-bottom profiler. Underwater and terrestrial ROVs and GIS were utilized for the survey of the cisterns and water supply lines under Hagia Sophia and surroundings.

### **Underwater Prospection on Dry Land - Archaeological Geophysical Prospection of the Roman City of Limyra, Turkey**

**Ralf Totschnig** (Central Institute for Meteorology and Geodynamics, Austrian Archaeological Institute, Vienna), **Sirri S. Seren** (ZAMG, Department of Geophysics, Vienna), **Alois Hinterleitner** (ZAMG, Department of Geophysics, Vienna), **Martin Seyer** (ÖAI, Vienna)

The Austrian Central Institute for Meteorology and Geodynamics ([www.zamg.ac.at](http://www.zamg.ac.at)) has over the past two decades gathered considerable experience in high-resolution near-surface geophysical archaeological prospection in Turkey. At the archaeological sites of Ephesos, Ainos, Alinda and Hadrianapolis, amongst others, the latest ground penetrating radar and magnetometer prospection systems have been tested, adapted for difficult terrain conditions and applied on a large scale. In 2013 the first geophysical archaeological prospection measurements were undertaken in the area of the Roman city of Limyra located some 80 km southwest of Antalya in Turkey. Due to the very high groundwater level at this site it was initially unclear whether geophysical prospection methods such as GPR would result in useful, archaeologically interpretable data. During the prospection campaign conducted in September 2013 an area measuring approximately two hectares was surveyed with magnetics and covered with densely spaced GPR measurements. The main focus was placed on the eastern and western parts of the ancient city that is surrounded by still visible massive fortification walls dating back to the early Byzantine period. Despite the adverse circumstances, which included ground water alongside numerous obstacles in the survey areas, very good prospection results were obtained.

### **Comparison of Field Survey and Geophysical Survey Results in Burdur Plain – SW Turkey**

**Igor Medarić** (University of Ljubljana, Ljubljana), **Branko Mušić** (University of Ljubljana, Ljubljana), **Ralf Vandam** (Katholieke Universiteit Leuven, Leuven), **Eva Kaptijn** (Katholieke Universiteit Leuven, Leuven), **Matjaž Mori** (University of Ljubljana, Ljubljana), **Jeroen Poblome** (Katholieke Universiteit Leuven, Leuven)

Since 1993 the entire ancient territory of Sagalassos (Pisidia, southwest Anatolia) has been investigated by extensive survey, and several areas have been intensively surveyed. In 2010 a new series of survey campaigns was initiated in the Burdur Plain (Burdur Province). The focus on this outlying region on the western edge of the territory aims to elucidate the relationship between the city of Sagalassos and the peripheral areas. Different type of sites from a wide chronological range of periods were discovered. In 2012 and 2013 geophysical survey was carried out on some of the discovered sites, in order to delineate their extent and understanding the nature, depth and preservation of the subsurface structures. GPR, magnetic method and susceptibility measurements were compared with survey results and from magnetic results some of the typical anomalies were carefully elaborated with archeomagnetic models, supplemented by the results of excavations and GPR.

### **Geophysical Indicators of a Middle Bronze Age Settlement in Cyprus**

**Kelsey M. Lowe** (University of Queensland, Queensland), **Aaron Fogel** (Griffith University, Nathan)

Data integration using standard archaeological techniques with geophysics has shown to be a great tool for understanding site landscapes and depositional history. In areas with robust archaeological material, combined geophysical applications can provide an effective way to discern complex features. Alampra-Mouttes, a Middle Bronze Age settlement (c1800 BCE) located in Cyprus was initially investigated by Cornell University in the late 1970s to early 1980s. The university's initiatives were to document the archaeology and architecture of this settlement, in hopes of providing a better understanding of Cypriot history. While investigations were only concentrated around a small portion of the site, their study suggested that the site extended beyond this, affording an opportunity for future researchers to test this observation. As such, ground-penetrating radar (GPR) and magnetometry were carried out in advance of recent archaeological excavations at the site to determine if the settlement extended beyond the location of the previous investigations and whether the material dated to the Middle Bronze Age. Application of these methods used in this case study provided successful visual tools for understanding the site's spatial layout and an opportunity to assess previous interpretations.

## **Geophysical Research of Medieval Sites of Ancient Settlement on Kama River Basin (Middle Pre-Urals Region)**

**Igor Zhurbin** (Physical-Technical Institute of the Ural Branch of Russian Academy of Sciences, Izhevsk)

Geophysical research of various types of sites of ancient settlement are conducted: administrative centers and nucleus of occupation (Uchkakar, Idnakar, Guryakar and Rozdestvenskoe settlement, 9-14 cents. AD) and agrarian-handicraft centers (Vesyakar, 9-12 cents. AD and Sadeykar, 5-8 cents. AD). Range of methods are used - earth resistance, magnetometer and GPR area survey. Generalization of the results revealed some typical trends of plan and structure: - gradual increase of the fortifications area and the development of new structural parts (up to 3 lines of fortifications of different times, limiting structural parts of a fundamentally different character and capacity of the cultural layers); - ordinary lay on all the investigated monuments; - the functional area zoning is detected on some monuments; - the fortifications included rampart-ditch system (in most cases they are not expressed in relief); - the rampart width reaches 15-20 m, and the ditch width is more than 10 m; - often the base of the rampart is loam with various inclusions, overlain the layer of mainland clay. The geophysical research results are confirmed excavations on all monuments.

## **Electroresistivity Tomography of Archaeological Site from the Territory of Bulgaria**

**Nikola Tonkov** (National Archaeological Institute with Museum, Bulgarian Academy of Sciences, Sofia)

Geophysical survey has already a long history in archaeological prospection. In this respect, the routine magnetic and resistivity mapping, as a field procedure and post processing, are well established and largely unified. Both techniques meet the archaeologists expectations for fast and inexpensive preliminary information about the existence and spatial distribution of archaeological features. Unfortunately, the depth of investigation is usually limited to the first several tens of centimetres. One of the ways for reaching greater depths is the vertical electrical sounding (VES). In this respect, both the innovations in the resistivity equipment and computer programming of the last two decades predetermined the increasing use of the so called continuous vertical electrical sounding (CVES) and respectively of the two and three dimensional inverse modelling known also as resistivity tomography (2D and 3D ERT). Applied as a complementary or a fully independent technique, 2D and 3D ERT can give indispensable information for the existence of deeply occurring archaeological targets or the exact dimensions of already registered ones. Presented report will discuss some results of successful application of 2D and 3D ERT on archaeological sites from the territory of Bulgaria, both settlements and burial mounds, most of them subsequently verified by archaeological excavations.

## **Using Electromagnetic Measurements to Map an Archaeology-Rich Buried Late Pleistocene Landscape in the Central Netherlands**

**Jos J.W. de Moor** (EARTH Integrated Archaeology BV, Leidschendam), **Serkan N. Elgün** (Fugro Geoservices BV, Leidschendam), **Chris van Isselt** (Fugro Geoservices BV, Leidschendam)

The province of Flevoland (central Netherlands) is a landscape created by land reclamation. Below the present-day surface of Holocene sediments lies a buried late Pleistocene Aeolian landscape. During the last decades, several Mesolithic sites have been discovered on the surface of this Pleistocene landscape. However, identifying and prospecting these sites is extremely difficult, mainly because of the large depth below the present surface level and the small surface of the sites. In the Netherlands, buried Mesolithic landscapes are traditionally identified and mapped using extensive and labour-intensive augering campaigns, geophysical methods are rarely applied. However, the spatial resolution of coring is limited, thereby increasing the chance of missing small, but archaeologically highly valuable landscape units. In order to improve the accuracy and predictive value of (geo-)archaeological research for buried landscapes, we applied high resolution electromagnetic (EM) measurements using a CMD Explorer. Using data from cone penetration tests, we validated the geophysical data. The EM measurements appeared to be a very accurate and time effective method to map the topography of the buried Pleistocene landscape. The method is therefore very promising for future prospective research in buried archaeologically rich landscapes, which form an important part of the Dutch cultural heritage.

## **Combining Georadar, Sub Bottom Profiler and Side Scan Sonar Data with Typical Underwater Survey Results - An Archaeological Survey in North-Eastern Poland**

**Andrzej Pydyn** (Nicolaus Copernicus University, Institute of Archaeology, Department of Underwater Archaeology, Toruń), **Paweł Stencel** (Nicolaus Copernicus University, Institute of Archaeology, Department of Underwater Archaeology, Toruń)

A paper will compare results of typical, non-destructive underwater, diver-based archaeological survey with electromagnetic and acoustic methods of investigation. An archaeological survey in selected lakes of north-eastern Poland conducted by the Department of Underwater Archaeology, Institute of Archaeology of the Nicolaus Copernicus University in Toruń, Poland shows that the use of non-destructive methods can give a wider look on the archaeological situation in the researched area. A final effect can be achieved by using a GIS software to combine and compare results from different kinds

of non-destructive survey. Acoustic methods of survey on shallow waters are very difficult to implement. In the same time high mineralisation of many inland waters limit electromagnetic techniques. Current experience shows that only complex approach to underwater survey can provide interesting results.

### **NDT, Geo-Archaeology, and Italy: Lights and Shadows**

**Pier Matteo Barone** (Dept. Archaeology and Classics The American University of Rome), **Carlotta Ferrara** (Dept. Mathematics and Physics University of Roma TRE), **Valerie Higgins** (Dept. Archaeology and Classics The American University of Rome)

The integration of interdisciplinary methods (e.g., in a GIS) allows us to spatially correlate archaeological surface scatters and anomalies detected by non-destructive techniques (NDT). The correct approach to the past should be not only to plan a before and after, but to plan a during, in the sense that proper planning for an excavation must include the presence of experts before and during the archaeological project. If this statement seems to be easy and expected, not always this is applied. In fact, this approach leads to the understanding that the basis for a correct investigative methodology must undoubtedly be the intelligent organisation of the team involved. But lack of money, closed minds, sometimes ignorance produce terrible mistakes and questionable results. A genuine interdisciplinary approach proves advantageous in several ways, increased by modern (and, most important, non-destructive) scientific techniques. This paper will be present the good and bad destiny of these integrated methods with some examples in Italy.

### **Results of Multidisciplinary Geophysical, Geochemical and Archaeological Researches of the Neolithic Sites in North-Western Russia**

**Marianna A. Kulkova** (Herzen State University, St.-Petersburg), **Andrey Mazurkevich** (The State Hermitage Museum, St.-Petersburg), **Jörg W.E. Fassbinder** (Bavarian State Dept. of Monuments and Sites, Munich)

The Dnepr-Dvina interfluvium is known as glacial lakes area formed in the Holocene, rich in archaeological sites. The landscape of the region conserved the glacial and water-glacial forms and deposits. These geological circumstances provide difficulties with decoding of magnetograms while the pedogenic process on these sites passed very slowly. However these sites also conceal valuable information about the life of ancient population, but one requires multiple methods in order to reveal these invisible evidences of the past hidden in sands. During the investigation of the cultural layer by the archaeological excavations since 2003 3D fixation of finds for the detailed space analysis, geochemical indication of the samples of cultural layer, magnetic prospection and kappametry were conducted. The geochemical methods, combined with the spatial analysis of the finds distribution, make possible the distinction of different horizons of habitation on these sites. The analysis of finds distribution and its correlation with geochemical anomalies allow making the correct interpretation of the functional zones and the structure of the settlements. The spatial and typological analysis of the archaeological material allows reconstructing microchronology of the site. For the first time such researches were made in this kind of geological environments. The study was provided by the grant support of RFBR No 13-06-12057 ofi\_m, RFH No 13-21-01003.

### **A Long Walk in the Italian Countryside. Large-Scale Geophysical Prospection in Rural and Urban Contexts in Central Italy**

**Stefano Campana** (University of Siena, Siena), **Ken Saito** (University of Cambridge, Cambridge), **Barbara Frezza** (University of Siena, Siena)

Geophysical prospection has long been recognized as one of the most effective forms of non-destructive archaeological investigation. In Italy, however, it has yet to be applied widely by archaeologists - or demonstrated publicly through successful case studies - as an effective tool at other than individual-site level. Certainly its potential for large-scale characterization of threatened archaeological contexts, and of previously unexplored rural and urban areas, has remained largely unacknowledged or tested in the field. This contribution, however, will present the first results of a programme of large-scale multi-sensor magnetometry that has covered the whole of the Etruscan and Roman town of Veii, near Rome, as well as initial exploration of the rural landscape of the Grosseto-Roselle valley in Tuscany. The research project aims at stimulating changes in the way in which archaeologists in Italy study the archaeology of landscapes, moving from an essentially site-based approach to a truly landscape-scale perspective. This kind of investigation, especially if combined with field-walking survey and aerial prospection, along with LIDAR imaging and test excavation wherever possible, could create an entirely new context for the exploration of previously unconsidered rural as well urban contexts in Italy and perhaps more broadly throughout the Mediterranean area.

### **Archaeological Remote Sensing and the Planning Process**

**Knut Paasche** (Norwegian Institute for Cultural Heritage Research-NIKU, Oslo), **Trude Aga Brun** (Archaeologist Vestfold County, Oslo)

Every year, a large number of archaeological investigations are carried out in connection with planning and building projects. This paper will concern itself principally with the survey phase. The results of surveys form the basis for assessing

the value of cultural heritage sites and for decision-making regarding what should be conserved and what can be removed. Fieldwork in this phase involves traditional surface surveys and test-sampling in uncultivated areas, and the mechanical removal of topsoil in cultivated areas. This keyhole methodology for area survey has been used almost exclusively for the past 30 years. It is both resource-intensive and destructive, and its results carry a high risk of being deficient and misleading. Focusing on aspects such as gaining overview, knowledge retrieval, reducing intervention and establishing a better basis for value prioritisation, we make the claim in this paper that it is now time to utilise remote sensing and geophysical methods in archaeological surveys to a much greater degree. Our examples are drawn from work carried out in Vestfold County in Norway as partners in the LBI-ArcPro research team.

### **An Integrated Archaeological Prospection and Excavation Approach at the Neolithic Circular Ditch System in Hornsburg, Austria**

**Jakob Kainz** (Institute for Prehistory and Early Mediaeval History (UFG) University of Vienna, Vienna), **Guglielmo Strapazzon** (University of Padua, Padua), **Roderick B. Salisbury** (Ludwig Boltzman Institute for Archaeological Prospection and Virtual Archaeology, Vienna), **Matthias Kucera** (Ludwig Boltzman Institute for Archaeological Prospection and Virtual Archaeology, Vienna), **Wolfgang Neubauer** (Ludwig Boltzman Institute for Archaeological Prospection and Virtual Archaeology, Vienna)

The aim of this paper is to present an approach combining archaeological excavation with geophysical prospection, through a combination of magnetometry, magnetic susceptibility, GPR and pXRF measurements, before and during excavation. Archaeological prospection is often carried out prior to excavation, to map the archaeology for the excavation or for planning procedures. The full archaeological potential of the prospection methods therefore is not attained; as such can help corroborate excavation results as well as providing further archaeological data which cannot be seen by the excavator's eye. Furthermore excavations provide an opportunity to investigate these anomalies allowing for an examination of the processes influencing the prospectability or non-prospectability of these features. This creates a suitable backdrop for a reflexive interpretative cycle between these fields. A better understanding of the physical properties of anomalies is gained, offering an insight into their prospectability, but also the anthropogenic or natural processes which created them. This can provide a link between past human actions and specific anomaly signatures, adding further archaeological interpretation to prospection data and providing a greater archaeological insight during excavation.

### **Archaeological Prospection and Natural Risk Management in Prehistoric Sites from Eastern Romania**

**Andrei Asăndulesei** (Interdisciplinary Research Department, "Alexandru Ioan Cuza" University of Iași, Iași), **Ionut Cristi Nicu** (Interdisciplinary Research Department, "Alexandru Ioan Cuza" University of Iași, Iași), **Radu Ștefan Balaur** (Interdisciplinary Research Department, "Alexandru Ioan Cuza" University of Iași, Iași)

Presently, within the scientific milieu dedicated to archaeology, it is universally accepted that the archaeological sites are more than ever being endangered by the natural and human factors. As a result of their activity, archaeologists are nowadays fully aware of this real problem, acknowledging the necessary use of new investigation methods borrowed from archaeometry. A wise management of the national cultural patrimony aligned to the concept of cultural resources management (CRM), forces the scientific community to employ modern techniques of analysing the archaeological sites, which can be a non-destructive pattern of research suited for all historical cycles. In this paper we will present an applied research based on integrating and improving of non-destructive techniques, while understanding and valuing the complexity of prehistoric archaeological sites. In direct connection we will consider the identification, evaluation and monitoring the endangered sites, either by natural or human factors, based on the same unified research model, made up of methods and principles also mentioned above. Moreover, a careful examination of the geomorphological and morphometric features and especially of the dynamics of the erosive processes completes the obtained information body.

### **Looking into Archaeological Archives – Geophysical Survey at the Large Scale Monument of the Hünenburg, Lower Saxony, Germany**

**Immo Heske** (Seminar für Ur- und Frühgeschichte der Georg-August-Universität Göttingen, Göttingen), **Martin Posselt** (Posselt und Zickgraf GbR, Mühlthal)

The Hünenburg is a late Bronze Age to Early Iron Age hillfort situated north of the Harz mountain close to Watenstedt, Germany. During the late 1990's excavations at the eastern rampart of the 3.8 ha fortified area yielded a stone wall with a military and prestige function. Field research including geophysical survey in the environment of the main site put a new settlement structure on the Bronze Age map in middle Europe. At the foot of the hillfort a settlement area of at least 20 ha in size is located and surveyed by magnetometer survey. More and more aspects of the distinctive types of archives in which the monument is preserved were revealed by geophysical survey. E. g. the course of a silt-up stream, huge parts of the buried remains of the settlement, which is towered by the hillfort, the typical settlement structures like pits as well as the cultural layers can be observed in the magnetogram. The clue is that erosion due to intensive agriculture was prevented by a medieval fieldsystem. Thus the heterogeneous monument of the Hünenburg obviously is preserved in many different

ways. Geophysical survey draws the researcher's as well as the cultural heritage's attention to these archives which save the archaeological record in the soil.

### **Archaeological Geophysics as a Tool for Heritage Management and Protection. The Case-Study of the Cardedeu Roman Villa**

**Ekhine Garcia** (Department of Mineralogy and Petrology, University of the Basque Country, Leioa), **Roger Sala** (SOT Archaeological Prospection, Barcelona)

The archaeological site of Pla de les Parets (Cardedeu, Catalonia) is known from late 19th century and it was partially excavated in 1917. The documentation of those researches and the superficial materials lead to identify the site as a rural roman villa. In 2002 local Heritage authorities started an investigation in order to assess the real extents and conservation degree of the remains. Over an area of circa 3.5 ha, 66 archaeological trenches were done, covering this area in a radial pattern from the known archaeological remains. 27 trenches have given positive results for archaeological remains. Because of the employed methodology, the results were partial and the description of the buildings and other particular features remained difficult. In order to improve the knowledge of the archaeological site, a geophysical prospection has been carried out in January 2014 promoted by the Catalan Agency of Cultural Heritage. In 5 days of fieldwork, 3.5 ha were prospected using a fluxgate magnetic gradiometer and preliminary results were used to design an additional 0.76 ha area where a GPR prospection was also conducted. The combined results allowed to describe the main buildings shape and to locate other archaeological features, giving a global vision of the settlement and its environment by means of non destructive methodologies.

### **Magnetometric Prospection in Investigation of the Archaeological Heritage on the Route of Linear Facilities in Hungary**

**Gábor Márkus** (Archeodata 98 Bt., Polgár), **János Dani** (Déri Múzeum, Debrecen)

Despite the fact that the magnetometric survey has been used for more than 20 years in Hungary, it plays important role in the heritage management only in the last 3 years. This radical change is connected practically to the change in Heritage Protection Act. During the last 20 years, beside other geophysical methods, also the magnetometric survey was a supplementary scientific approach. In contrast, the current large-scale use of this method has crucial importance in the predictive and preventive archaeological works of the large investments in Hungary, as in the case of M4 motorway. The paper tries to present the experiences (results, advantages and disadvantages, respectively the limits of the method) of the magnetometric prospection on the route of linear facilities, particularly on the sites situated on the 32 km long track of the M4 motorway.

### **The Great Kurgans of the Early Iron Age and Their Periphery: Recent Results of Magnetic Prospecting in the North-Caucasus**

**Jörg W.E. Fassbinder** (Bavarian State Dept. of Monuments and Sites, Munich), **Anton Gass** (Bavarian State Dept. of Monuments and Sites, Munich), **Andrei B. Belinskij** (GUP "Nasledie" of the Ministry of Culture of the Stavropol' Region, Stavropol'), **Hermann Parzinger** (Prussian Cultural Foundation, Berlin)

Recent investigations of the great kurgans of the Early Iron Age period not only sheds new light on the archaeological research but moreover delivers extraordinary new results about these monumental buildings. According to a new definition of monumental kurgans, this category of sites consists not only of the burial chamber but also of findings in the periphery. An essential contribution to the investigation of the circumference of kurgans can be achieved by a large area geophysical prospecting. Notably magnetometer prospecting allows us a large scale, but also highly sensitive prospecting of sites combined with a high spatial resolution. Although in depths of several meters, further details of the burial chamber cannot be observed, the method however allows us at least to trace the architectonic construction details of the monument itself. In the periphery of the kurgans we detected a multitude of different structures such as satellite burials, separate grave goods, secondary burials, enclosures, offering pits, cremations and associated finds. Here we present case histories from the latest findings on kurgan sites which not only complete our knowledge but moreover - in combination with geophysical surveys - reveal a multitude of new discoveries and show the potential of this interdisciplinary research approach.

### **Investigating the First Traces of the Alans in the Kislovodsk Basin by Means of Integrated Prospection**

**Dmitry Korobov** (Institute of Archaeology, Russian Academy of Sciences, Moscow), **Vladimir Malashev** (Institute of Archaeology, Russian Academy of Sciences, Moscow), **Jörg W.E. Fassbinder** (Bavarian State Dept. of Monuments and Sites, Munich), **Vladimir Bezdudny** (Institute of Archaeology, Russian Academy of Sciences, Moscow)

The Kislovodsk basin is part of the unique Caucasian Mineral Waters area and undoubtedly the best investigated place in the Northern Caucasus in archaeological sense of view. The recent project (supported by RFBR, No 12-06-00072a) included integrated prospection is devoted to the investigation of the first traces of the Alanic tribes in the Kislovodsk basin dated to the 2nd - 4th cents. AD. On the first stage the aerial photos of early 1970ties were investigated. The structures typical for Early Alanic defended and burial sites were recognized on one photo made in September 1970. Two plots for geophysical prospection 80 x 80 m and 120 x 160 m were chosen in May 2012. For the magnetometer measurements we applied the Cesium Smartmag SM4G-Special magnetometer in a duo-sensor configuration. The smaller plot was also measured in



October 2012 with help of GPR MARS300-4 system consisted of 4 antennas with frequency of 300 MHz. As a result two burial mounds, two-chamber catacomb grave and rectangular ditch detected very sharply by the magnetometer and GPR were excavated in 2012 and 2013. Remains of three human skeletons were found in the entrance pit with some finds of the early stage of the 4th century AD.

### **Magnetic Prospection to Describe an Unknown Settlement Related to a Roman Road**

**Ekhine Garcia** (Department of Mineralogy and Petrology, University of the Basque Country, Leioa), **Roger Sala** (SOT Archaeological Prospection, Barcelona), **Haizea Arrazola** (Department of Historical Archaeology, ARANZADI Society of Sciences, Gipuzkoa), **Eneko Iriarte** (Historical Sciences and Geography Department, University of Burgos, Burgos), **Enrique Lekuona** (Department of Historical Archaeology, ARANZADI Society of Sciences, Gipuzkoa), **Javier Puldáin** (Architecture Department, University of the Basque Country, Leioa), **Juan Mari Txopereena** (Department of Historical Archaeology, ARANZADI Society of Sciences, Gipuzkoa), **Rafa Zubiria** (Department of Historical Archaeology, ARANZADI Society of Sciences, Gipuzkoa), **Juantxo Aguirre-Mauleon** (Department of Historical Archaeology, ARANZADI Society of Sciences, Gipuzkoa)

In the past two years a team of the Society of Sciences ARANZADI has been studying the localization of the path through the Pyrenees of the roman road that linked the municipia of Asturica Augusta and Burdigala, presenting new evidences which have suggested some variations from the path known so far. During this research new sites have been located by fieldwalking and archaeological trenches. In particular, a group of trenches in the emplacement of Auritz (Navarre) have revealed roman building foundations, interpreted as part of an urban settlement. In order to limit and describe the archaeological site, a geophysical prospection has been conducted over an area of 18 ha using a magnetic fluxgate gradiometer. The quality of the contrast had been tested previously in order to assess the applicability of this method. Results have shown a densely occupied area of circa 5 ha, areas without relevant anomalies and areas with good magnetic contrast but showing a poor shape definition of anomalies. Those could correspond to areas where the agricultural works have destroyed the remains. The urban area buildings are organized along the roman road axe without a regular urban mesh, suggesting that the road was preexisting to the foundation of the settlement.

### **Magnetic Survey in Shekargah-e Khosro, Kermanshah - Iran**

**Babak Aminpour** (Independent researcher, Tehran)

This area is located in Kermanshah, the city in the west of Iran. The area of this site is about 60 ha, and due to its location; it means being surrounded by urban life, is in a serious hazard. Just applying a few archaeological trench would not result significantly, and would put the site in wider danger of urbanization. Therefore, as a fast and wide survey was needed, it was decided to conduct an archaeological geophysics survey by magnetic method in 3 ha of the area. Magnetometry was made in gradient method along parallel profiles 1 meter apart and measurement points 12.5 cm (8 measurement per meter). After the process and producing the gradient anomaly map buried structures were revealed in some parts of it, specifically in one part, two close structures can be seen. Studying the previous archaeological activities performed by Mr. Mehdi Rahbar, the interpretation of these structures can be the wine-production establishment related to Sassanid Persian period.

### **Spatial Structure of Medieval Sites of Suzdal Opolye Based on Archaeological and Geophysical Data**

**Fedorina Anastasia** (Institute of Archaeology, Russian Academy of Sciences, Moscow)

In 2007-2011 a series of magnetic surveys embraced 16 medieval rural sites near Suzdal (one of the centers of the North-Eastern Rus). The key settlements being surveyed, the geomagnetic anomalies have been proved corresponding to the most-settled sectors. Interpretation of the data showed that the details of the settlements plans are still displayed quite unclear due to the ages of ploughing-up and flexibility of planigraphic decisions. Comparison of the localities of the surfaces metal finds and chronological groups with the results of wide geomagnetic survey were one of the main directions of the survey. To see the geophysical and archaeological accounts clearly, it is vital to understand that agricultural activities, though influencing the stratigraphic spread of material, do not seriously disfigure the planigraphic spread of material. The second, and not less important, observation points out the fact that a lot of finds get into the layer inside and in immediate proximity of the main steads houses. So, though we can not localize separate parts of the build-up, we can try and trace the location of separate households and groups of them.

### **Early Medieval Slavic Archaeology. How can Geophysics Help?**

**Peter Milo** (Institute for Archaeology and Museology, Masaryk University, Brno)

In the Central Europe, many settlements, hillforts and burial grounds from early medieval (6th-10th cents. AD) were excavated. Rural characteristics of settlements without stone structures and simple cremation rite of burial grounds make the results of geophysical prospection very disappointing. However application of the new high-sensitivity magnetometers developed in last decades reveals lot of valuable information about characteristics on many sites. Today we can deal with questions such as extend and internal structure of the settlements, density and the type of occupancy, and sometimes also



the specific functional purpose and chronological classification of individual features. Prospections conducted on hillforts bring new evidences about destruction layers or type and characteristics of the ramparts. Different burial rites were identified on the burial grounds with geophysical prospection as well.

## POSTERS

### **Geophysical Investigations of Fortified Settlements from the Bronze Age in the Southern Urals**

**Vladislav V. Noskevich** (Institute of Geophysics of the Ural Branch of Russian Academy of Sciences, Yekaterinburg), **Natalia V. Fedorova**

During the past three decades, 21 settlements with closed circular, oval or rectangular fortifications have been discovered within a rather limited territory of Southern Urals. Their discovery was made possible through the wide use of aerial photography and field surveys. All settlements, which range in size from 0.8 to 3.5 ha, are located in valleys of small steppe rivers in the Tobol and Ural basins, all within an average distance of 40-60 km from one another. Settlements date back to the Bronze Age. Architecture series settlements almost completely destroyed, housing depression and groundwater mounds plowed. In many cases, destroyed and buried underground objects using decoding images could be determined only contours settlements. In three fortified settlements: Konoplyanka Sarym - Saklay and Andreevskoye - detailed magnetic survey was conducted. At some sites GPR was used. Geophysical investigations confirmed the results of excavations in the settlement Konoplyanka. The data of magnetic survey was considerably noisy by anomalies from near-surface sources. For finding-out of details of a structure of ancient sites of ancient settlement various kinds of transformation of the magnetic data have been used. This data allows to restore an internal lay-out of sites of ancient settlements.

### **Using of the German Aerial Photography of the WWII Period in Archaeology of Cimmerian Bosphorus**

**Gennadiy Garbuzov** (Southern Scientific Center, Russian Academy of Sciences, Rostov-on-Don), **Nikolay Sudarev** (Institute of Archaeology, Russian Academy of Sciences, Moscow)

The information potential of the German aerial photography of the WWII period is demonstrated on the example of two areas into Asiatic part of Cimmerian Bosphorus. The first region is the northwestern end of the Taman peninsula and the second one is the area near modern Red Battery settlement on the left bank of the lower reaches of the Kuban River where ancient settlement with two forts and extensive earth walls located. A few German air photos dated spring and winter 1943 were analyzed with the set of other images including the space images. Analysis of well visible photo-marks of the ancient landscape has revealed important results. In the first area the ancient road network was opened including some roads which stopped suddenly on the sea scarp. It is supposed that the stopped roads should were lead to sizeable ancient settlement destroyed by abrasion. In the second example the knowledge about spatial organization of wall system have been improved significantly. The results of our researchers confirm the high value of the German aerial photographs as unique sources of archaeological information.

### **Huge Hill-forts of Northern Black Sea Region: The Spatial Analysis and Visualization Using GIS-based Methods**

**Marina Daragan** (Institute of Archaeology NASU, Kyiv; German Archaeological Institute, Berlin)

In the middle of the 7th century BC in forest-steppe part of the Northern Black Sea Region at the same time a network of huge hill-forts (Nemirov, Motronino, Zhurzhintzi, Trachtemirov, Chodosov, Tarascha, Belsk) were erected. This powerful system of fortifications (wall height up to 15 m and ditch depth up to 6 m), bordering the vast area - from 100 ha to more than 4000 ha. All of the hill-forts have a complex system of fortifications, often include several ditches or shafts or the inner (central) to strengthen. All hill-forts built taking into account the topography, inside some of them have a small water source. The majority of these hill-forts built in remote places, far from large bodies of water mains, in both high and low topography. On all major hill-forts of forest-steppe held GIS work. For detailed plans of towns and surrounding areas was conducted digital landscape monuments and surrounding areas. As a result, three-dimensional plans of fortifications, their profiles, the data on the volume of construction work were constructed. The study of ancient settlements by GIS technologies demonstrated that they form complex and well-ordered system. They are built on the same pattern (have a high degree of standardization) and their principles of fortification are the same.

### **Roman Site Sipćina in Northwestern Croatia: Geophysical Prospection and Archaeological Heritage Protection**

**Lea Čataj** (Croatian Conservation Institute, Zagreb), **Andrej Janeš** (Croatian Conservation Institute, Zagreb), **Matjaž Mori** (Gearh d.o.o., Zagreb)

Sipćina is situated in the Moslavina region, in northwestern Croatia. Small scale archaeological excavations were conducted in 1964: the site was interpreted as a probable roman military camp and dated to the 1st and 2nd century AD. Croatian

Conservation Institute conducted archaeological excavations in 2012: the site was recognized as a part of Roman villa and dated from the 1st to the 4th century AD. Archaeological remains were extremely devastated by agricultural machinery, since the site was for centuries used only as farm land. Although it was ascertained in 1964 that Šipčina was an important Roman site, it was legally recognized as a Cultural Heritage site in 2013. Geophysical research applying ground penetrating radar (GPR), resistivity and magnetic survey was influenced to great extent by present day surface conditions determined by intensive agricultural land use and modern infrastructure installations like high voltage power line and gas pipes. Despite of extremely unfavorable circumstances resistivity and GPR surveys enabled reliable interpretation of fortifications that revealed possible military origin of the Roman architectural complex. On the basis of information obtained from small scale excavations and geophysical survey, heritage protection regulation was accepted by the National heritage center.

### **Archaeological Prospection of “Špečený val” (Burnet Wall) in Village Kamenný Most (Slovakia)**

**Martin Bartík** (Archaeological Institute SAV, Nitra), **Mário Bielich** (Archaeological Institute SAV, Nitra), **Elena Blažová** (Archaeological Institute SAV, Nitra), **Ivan Kuzma** (Archaeological Institute SAV, Nitra)

Since 2010 Archaeological Institute SAV in Nitra is participating in an international project ArcheoLandscapes Europe. In the framework of the project I. Kuzma was prospecting remains of old wall system in the village Kamenný most in south Slovakia. It was first mentioned in the 13th century as “Fossa giganteum”. Dating of the wall is very debatable up to now. In 2011, we conducted geophysical measurement of fluxgate magnetometer by Sensys (Germany) and continuous measurement of the vertical magnetic field. Magnetic gradient was captured five fluxgate probes located 0.2 m above the ground surface. Total area was premeasured with an area of 50 x 150 m, with a density of 0.5 points x 0.05 m. On the resulting magnetic map, we see two types of local magnetic anomalies. Linear magnetic anomalies indicate the progress of archaeological linear structures (ditches, walls) with values ranging from -2 to 2 nT/m. Second circle magnetic anomalies indicate relevant articles of iron reaching values from -550 to 550 nT/m. At 110-120 meter measurements, we can see the progress of the burnet wall. Between 20 to 30 meters wall is interrupted. The another interesting anomaly is between 50 -100 meters, it is probably a system of ditches, which's dating to the post medieval period.

### **Multi-channel GPR Prospection in the Archaeological Site of Monte Prama (Cabras, Italy)**

**Gaetano Ranieri** (University of Cagliari, Department of Civil Engineering, Environmental Engineering and Architecture, Cagliari), **Raimondo Zucca** (University of Sassari, Department of History and Sciences of Man and Education, Sassari), **Antonio Trogu** (University of Cagliari, Department of Civil Engineering, Environmental Engineering and Architecture, Cagliari), **Sergio Calcina** (University of Cagliari, Department of Civil Engineering, Environmental Engineering and Architecture, Cagliari), **Luca Piroddi** (University of Cagliari, Department of Civil Engineering, Environmental Engineering and Architecture, Cagliari), **Alessandro Usai** (Soprintendenza dei beni archeologici di Cagliari e Oristano, Cagliari)

Monte Prama's area is one of the most interesting archaeological sites in Sardinia (Italy). Here, during the 70s of the last century, fragments of about 25 giant statues were found, overlying a previous nuragic necropolis (IX-VIII century BC). They represent archers and boxers, of about 2 metres in height. In order to know the extension of the necropolis, a geophysical survey has been carried out in the surroundings of the digged area where the giant statues have been found. The survey was carried out in an area greater than 60,000 square metres by means a 16-channel GPR with a 200MHz antenna. The system has made possible the simultaneous recording of 15 radar profiles spaced 12 cm one another. Therefore, the time needed to survey the entire area, with very high spatial resolution of data, was only of five days in spite of the roughly terrain. Data show the widespread presence of anomalies in a depth range between 60 and 160 cm that can be related to the presences of both graves, walls, huts and roads. Moreover, the geophysical prospection has revealed that the possible extent of the archaeological site could be much more wider than the digged area.

### **Magnetic Prospecting of Late-Roman Time – Beginning of the Great Migration Period Settlement and Cemetery Vojtenki (Eastern Ukraine)**

**Kseniia Bondar** (Taras Shevchenko National University of Kyiv, Kyiv), **Mikhail Lyubitchev** (V. N. Karazin Kharkiv National University, Kharkiv)

The settlement and associated cemetery from Late Roman time - beginning of the Great Migration Period of archaeological complex Vojtenki 1 situated in Left-bank Forrest-Steppe of Ukraine are investigated. Magnetic prospecting is done using duo-sensor caesium magnetometer equipment. On the settlement eleven magnetic anomalies with positive intensity exceeding 10 nT are observed on 2,5 ha area. All anomalies have coupled negative ones located to the north. Their probable sources were interpreted as kilns. This assumption is proved by later excavation. Pottery kilns and complexes of the Late Roman age were found during 2010-2013 yrs. However, the largest anomaly appeared to be associated with artillery shell

from WWII time. The investigated part of the settlement was used mainly for production activity. On the ground cemetery deep individual burials are expected to be found under positive magnetic anomalies with area exceeding 4 sqm, intensity up to 6 nT. The anomalies are formed due to magnetic contrast between parent rock (loess) and soil infill of burial pits. However it is impossible to recognize small cremations and shallow burials lying in top-soil. Only features with strong magnetization are mapped on the settlement and only deep ground burials could be recognized from magnetic prospecting results.

### **Investigating the Damage - A LIDAR Perspective: Three Case Studies from Poland**

**Mikołaj Kostyrko** (Adam Mickiewicz University, Poznan)

In my poster I would like to present how LiDAR and aerial photography data obtained from the resource of “IT System of Country’s Protection against Extreme Hazards” project can be used to assess the damage done to archaeological sites on three case studies from Poland. This data, which can be acquired from Polish government – Geodesic and Cartography Authority, is right now widely in use by archaeologist in Poland, bringing, a small revolution in to detecting new sites and managing archaeological heritage, giving also the possibility of testing the landscape with GIS analysis. In my poster I will focus on representing three different archaeological sites and the damage done to them by tillage, stone quarrying, forest managing and tourism in the perspective of LiDAR and aerial photography data.



### **T02S019 - 3D ARCHAEOLOGY: THE SCIENTIFIC FUTURE OF DOCUMENTING THE PAST**

**Organizers:** **Jeroen De Reu** (Department of Archaeology, Ghent University, Gent), **Wei Chu** (Department of Archaeology, University of Reading, Reading), **Bernard Frischer** (School of Informatics, Indiana University, Indiana)

The application of 3D recording techniques in archaeology has drastically increased in the last decade. These techniques have documented a wide variety of sites, features, and artifacts, from entire archaeological landscapes to monuments, rock art, and impliments. This session will examine the scientific value of the 3D recordings. How can a 3D recording be used as an analytical tool for archaeology, as opposed to a means of simple visualization? It will focus on how 3D data can aid in the study and interpretation of archaeological heritage and how it opens new research opportunities that have been difficult or even impossible to investigate through traditional recording techniques. The goal of this session is to discuss the new possibilities (and limitations) of image-based/range-based 3D reconstruction in the study and interpretation of the archaeological heritage. Ultimately, we aim to discuss how its application can improve the quality of the archaeological research.

### **ORAL PRESENTATIONS**

#### **Image-based 3D Modelling: The Future of Archaeological Excavation Practice**

**Jeroen De Reu** (Department of Archaeology, Ghent University, Gent)

The acts of an excavation are unique, it can only be done once. The gain of scientific knowledge means the destruction or altering of the in-situ remains. To maximise the ex-situ preservation and understanding of the site, we materialize the excavation by generating descriptive and interpretative representations of the in-situ dataset (e.g. notes, descriptions, drawn plans and sections and photographs). The generated archive should allow us to ‘re-excavate’ (i.e. re-analyse and re-interpret) the site. When we materialise an excavation it is often a 2D representation of a 3D subject. Moreover, this 2D representation is the result of a subjective interpretation of the archaeologists, and thus biased by the archaeologist’s mind. Image-based 3D modelling provides new opportunities to improve the quality of the materialised excavation (i.e. a more objective and 3D recording of the 3D object), leading to increased possibilities for re-excavating the site from the archive. Based on recent applications of image-based 3D modelling on archaeological excavations worldwide, covering a broad variety of sites, features and contexts from different chronological eras, we will argue why this technology could and even will revolutionise the practice of excavation.

#### **The Use of 3D Models for Intra Site Investigation in Archaeology. Case Study Drawn from the Uppåkra Research Project**

**Nicoló Dell’Unto** (Department of Archaeology and Ancient History, Lund University, Lund)

Since fall 2009, in the frame of the Uppåkra research project, image based 3D modelling techniques have been regularly employed in order to document, monitor, analyze and interpret the investigation activity at the archaeological site of Uppåkra, Sweden. This settlement was established at the beginning of the 1st century BC and existed till the end of the 11th century AD. This site represents an ideal environment for conducting our experiments. The rich stratigraphy and the large variety of structures discovered during the years allowed for the testing of tools and instruments across a number of different types of archaeological situations. After an initial phase of experiments employing different tools and methods, our team started a systematic use of these techniques to map the limits and the potentials in using these methods to realize

geo-referenced three dimensional (3D) models in support of the on-going field investigation. Since 2012, the texturized 3D models realized during the excavation are systematically imported and visualized into a 3D Geographic Information System (GIS), with the aim to (i) visualize the models in direct spatial relation with the data recorded during the investigation, to (ii) achieve a better understanding of the cultural relations among the different strata detected during the investigation process, and to (iii) built a 3D temporal documentation tool capable to simulate specific moments of the investigation process, employing virtual replicas of excavation areas investigated and documented in different campaigns. This paper will present and discuss the results of this on-going research activity.

### **DTM and Photogrammetry as the First Stage of Forming 3D Database for Classical Sites on the Example of Nea Paphos (Cyprus)**

**Lukasz Miszk** (Jagiellonian University, Krakow)

The main purpose of this study is to present the foundations of forming new documentation standards for the Nea Paphos, Cyprus site. The main goal of the works that are the topic of this presentation was to create a complete database in a GIS environment as a base for 3D database map. The first step in the development of the database was to prepare digital terrain models (DTM) for the aforementioned sites, using a 3D scanner together with Microstation and Micromap software. The models will be supplemented by applying calibrated photogrammetric documentation of registered architectural structures and trench profiles. It will result in a three-dimensional site model with the possibility of further developing each of its individual components. The three-dimensional site model will serve as a basis for a multilayer orthophotomap, which will also include aerial photographs and geophysical maps, as well as archival photos and maps. The whole project, developed in a GIS environment, will be supplemented with information on the archaeological material collected during the excavations, i.e. its location, illustration, photograph, chronology, etc. As mentioned above, it will result in a complete database functioning in one system with the access to all the information about the site, its architecture and full documentation for both field and lab use.

### **Getting Started with 3D Archaeology: The Estonian Experience of Implementing Photogrammetric Methods in Archaeology**

**Ragnar Saage** (University of Tartu, Tartu)

The so far short, but intensive experience of using photogrammetric methods in documenting Estonian archaeological sites, has given much insight into what sort of problems you can be facing as a 3D archaeology pioneer in your country. The hardest part of implementing photogrammetry as the main documentation tool, seems to be convincing the excavation leaders to entrust an important part of the documentation, to a set of digital photos, that will eventually be turned into a 3D model. This also requires a shift of resources, like time and money, to be spent on photogrammetric documentation. The latter threatens to change the organizational structure of archaeological excavations, which puts the excavation leaders under pressure of social issues regarding fieldwork habits and employment of expedition members, whose skills are about to become unnecessary. By our experience, several measures can be taken, that ease the inevitable transition into 3D archaeology. They include choosing sites that are easier to model, making photogrammetric documentation a compulsory part of the archaeologist's curriculum and creating an environment, where 3D data can be stored and accessed by other archaeologists.

### **No Resources for 3D Scanning? Intensive Field Documentation Using Total Stations**

**Jari Pakkanen** (Finnish Institute at Athens, Athens)

The cost of laser scanning hard- and software is still prohibitive for many archaeological projects, but most projects have access to a reflectorless total station. In this paper some ideas of how it can be used for intensive stone-by-stone documentation of archaeological heritage will be presented. Several factors together enable faster and more cost-effective recording at the sites: 1. Using laser instead of infrared reduces the size of the team from two persons to one. 2. A dense network of laser backsights allows for fast changes of the instrument location and getting ideal views of all measured surfaces. 3. Abandoning the use of optical telescope and using the laser pointer instead gives a better idea of what exactly needs to be recorded. The method can effectively be described as directly 'drawing' the blocks in 3D with the total station. The presented examples are derived from ongoing Finnish Institute fieldwork projects at Naxos in Sicily and Kyllene harbour in Greece. Some of the principles above can also be applied to underwater work. A new freeware tool for directly producing 3D CAD files from the total station data will also be featured.

### **The Cognitive and Knowledge Generating**

**Matteo Pilati** (Archaeology, Institute of Culture and Society, Aarhus University, Aarhus)

The paper presents some preliminary results of an ongoing PhD project designed to clarify the cognitive and the knowledge generating properties of 3D visualisations in average archaeological investigations - mostly rescue excavations. This project aims at laying the epistemological fundament of an empirically-informed evaluation of how 3D visualisation technologies support interpretation processes. It is often assumed that 3D visualisations enhance the perception and analysis

of the excavation data. However, archaeologists are trained to infer 3D information from 2D documentation, and the implementation of 3D visualisations in field archaeology is a quite closely defined job: excavation and documentation require stringent methods, and interpretation processes happen in complex information ecologies involving individuals, technologies and procedures. After the many efforts done to investigate the procedural sustainability of 3D data acquisition surveying, the questions urge whether and how the real-time analysis of 3D visualisations contributes with new knowledge, and whether and how the use of 3D visualisations better support collaborative interpretation processes. The concepts of distributed and collaborative cognition are suitable theoretical frames to provide a cognitive understanding of the relation between archaeologists and 3D visualisation technologies: 3D visualisations are considered anchors for multimodal and environment-coupled cognition.

### **A New Approach to 3D Documentation of Excavation and Landscape Archaeology at Tel Akko, Israel**

**Jamie Quartermaine** (Oxford Archaeology North, Oxford), **Ann E. Killebrew** (Pennsylvania State University, Pennsylvania)

Tel Akko, located east of the UNESCO World Heritage Site of Acre, has served as a major Mediterranean port in the southern Levant for five millennia. As part of the renewed excavations at the mound directed by A.E. Killebrew and M. Artzy, the Tel Akko Total Archaeology Project is implementing a multi-faceted approach that includes systematic excavation, an intensive pedestrian survey, the development of cutting edge multi-dimensional 3D documentation techniques, and a GIS based investigation of the hinterland of the site. The documentation system is designed to enable the recording of very complex stratigraphy in the excavations and to integrate this with landscape surveys across the tell. The 3D graphic data is created by means of photogrammetry, using state-of-the-art software (Agisoft PhotoScan) to generate modelled surfaces on a daily basis at each stage of the excavation. This process utilizes digital aerial photography captured from a remote controlled hexacopter. The resulting 3D models produce a total record of the excavated data, and provides a valuable legacy record of Tel Akko's archaeological features. The survey of the wider landscape combines data from past pedestrian surveys, LiDAR and orthophotography within a GIS to reconstruct the development of the historic topography and land-use.

### **A Digital Antonine Wall: Using 3D Data for Site Management and Interpretation**

**Lyn Wilson** (Historic Scotland, Scotland), **Alastair Rawlinson** (Digital Design Studio, Glasgow School of Art, Glasgow)

As part of the Scottish Ten project ([www.scottishten.org](http://www.scottishten.org)), an airborne LiDAR survey was undertaken of the entire Antonine Wall, the most Northerly frontier of the Roman Empire. In addition, terrestrial 3D laser scanning and photogrammetry was carried out at two prominent fort sites, and close-range 3D documentation of Roman artefacts from these locations. This extensive 3D dataset, ranging from the macro scale to the micro, is being used to help in the management of this World Heritage Site and in its re-interpretation. Analysis of the LiDAR data will assist archaeologists to understand better the location of the Wall and its associated structures in areas where there is little extant archaeology remaining. A mobile application is in development which will use the 3D laser scan data as a platform for virtual reconstructions of fort sites to facilitate understanding and 3D models of artefacts to allow for virtual examination. This paper will explore the challenges and benefits of 3D digital documentation for large and complex archaeological sites.

### **3D Wemyss Caves: How 3D Recording and Reconstruction is Opening up New Avenues of Research into an Intractable Archaeological Problem**

**Joanna Hambly** (SCAPE Trust, University of St Andrews, St Andrews), **David Strange-Walker** (Trent and Peak Archaeology, Nottinghamshire), **Marcus Abbott** (ArchHeritage, South Yorkshire), **Charlotte Francoz** (Northlight Heritage, Glasgow), **Ingrid Shearer** (Northlight Heritage Glasgow), **Tom Dawson** (SCAPE Trust, University of St Andrews, St Andrews)

The Wemyss Caves in Scotland are special because of the hundreds of prehistoric and historic carvings within them. Jonathan's Cave contains over 30 Pictish (5th-10th century AD) abstract symbols and animal representations; a possible Viking boat carving; early Christian crosses and graffiti from the 18th century onwards. Despite a century of archaeological research, activities associated with the pre-modern carvings remains elusive. In 2013, we applied laser scanning, photography, structured light scanning and reflectance transformation imaging to create a virtual Jonathan's Cave. This online resource presents possibilities for engaging a worldwide community in the study and interpretation of the carvings and their context. This paper will consider the following: • What are the technical challenges of re-creating a cave environment that is accurate and realistic enough for remote research? • Which techniques best track the 'biography' of a carving and help identify the original? • Can we detect patterns and meanings in the location of carvings, and determine the influence of cave morphology and lighting conditions? • Which techniques are most useful from a management and monitoring perspective? • What is the potential for techniques such as RTI to crowdsource remote study? • What are the risks and benefits of opening up research to a non-specialist audience?



## Creating the Past: Recording, Visualising and Knowing

**Liliana Janik** (Department of Archaeology and Anthropology, University of Cambridge, Cambridge)

3D recording of archaeological data provides us with an unprecedented opportunity to virtually recreating the recorded artefacts and monuments in and out of a context of their discovery and location. It can be used in a variety of ways. In this presentation, I will concentrate on the creative aspects 3D recording, the visual reconstruction of rock art in northern Russia. Using the concept of a 'total recording' in obtaining the data we are able to generate interpretations of the past in non-verbal way where the meaning is based on the images captured in rock art, what allows us to further our knowledge as well challenge our assumptions about the creative capacities of past communities. In particular I will concentrate on two examples of carvings from the White Sea region of northern Russia dated to between six and three and the half thousand years ago, one the act of skiing and the second marine hunt.

## Engaging Virtual Worlds: Simulations and Cultural Heritage

**John Fillwalk** (Ball State University, Muncie)

This lecture will survey recent simulation projects by the Institute for Digital Intermedia Arts at Ball State University that have employed various reconstruction methodologies in virtually interpreting significant archaeological sites environments. Scholarly and technical approaches will be illustrated in various cultural heritage projects which have included the UNESCO World Heritage Sites of Hadrian's Villa and Stonehenge, the Roman Pantheon, the Solarium Augusti, Adena Hopewell, Chichen Itzam Temple of Artemis, and Izapa. Instructional design, scholarly interpretation and technical concerns will be discussed in exploring these 3D multi-user virtual world projects. All projects are produced in the game engines of Blue Mars / CryEngine2 and Unity 3D. The IDIA Lab at BSU engages artists, scholars, designers, educators, scientists, and technicians in the exploration of the intersections between the arts, science and technology. Scholarly, creative and pedagogical projects investigate immersive virtual reality, human computer interaction, visualization and 3D simulation. IDIA Lab develops projects in partnership with a cohort of international clients and scholars - investigating the forefront of immersive media design and learning.

## Archaeological Scientific Visualization of Uncertain Past - Problems and Prospects

**Sorin Hermon** (Science and Technology in Archaeology Research Center (STARC), The Cyprus Institute, Nicosia),  
**Franco Niccolucci** (VAST – Lab, PIN srl, University of Florence, Prato)

Scientific (3D) visualization in archaeology, using digital methods, is primarily concerned with emphasizing and augmenting the "wow" effect of archaeological research. Most effort has been concerned with accurately reconstructing elements of the past, mostly architectural complexes or iconic fragmentary objects, such as statues, furniture and related. In most cases, even though implicitly recognized by most that archaeology by itself can reveal only fragments of the past, these 3D representations showed an idealized past, rich in colours and geometric details. Visualization in archaeology is more than just illustration - it conveys a substantial component of interpretation. Our research aims at formally capture, document and represent the cognitive process archaeologists perform in their minds when they draw a mental representation of the past and later on is manifested in its 3D surrogate. Moreover, we aim to transform the constraints under which archaeologists often operate, namely dealing with uncertainties, into opportunities enabling a more transparent and scientifically accurate publication of the scientific process. Our paper will present the theoretical background to this research, which will be exemplified through a detailed description of several case-studies, which will demonstrate that organizing archaeological data into a well-documented and transparent visualization framework will enhance the interpretative process. Representations of inherent or induced uncertainties will be considered as well.

## The Use of 3D in Archaeology: Advantages and Disadvantages

**Despoina Tsiafaki** ("Athena": Research & Innovation Center in Information, Communication & Knowledge Technologies, Xanthi), **Anastasia Michailidou** ("Athena": Research & Innovation Center in Information, Communication & Knowledge Technologies, Xanthi)

The application of 3D in Archaeological research expands more and more during the last decades. 3D presentation of archaeological sites, monuments and artefacts becomes almost a common trend in the archaeological work. The archaeological experience recognizes it more as a tool for the general public that offers a visualization of the target object than a mechanism that can offer new possibilities in the research itself. Focus of this paper is to explore the opportunities given to the field of Archaeology by the 3D recording. Through the use of specific cases studies it will be investigated how the 3D application can contribute to the understanding first and the interpretation later on, of a certain archaeological object. Issues such as the types of questions and problems that can be faced and answered with 3D, will be raised and discussed. The possibility to get an expansion of the archaeological research in new aspects, as it happens with other technological tools (e.g. databases), will be also examined. In addition to those it will be looked the disadvantages and the limitations of the



3D application in the archaeological record, in order to accomplish a more complete view of its usage. Acknowledgement: This research has been co-financed by the European Union (European Social Fund - ESF) and Greek national funds through the Operational Program "Education and Lifelong Learning" of the National Strategic Reference Framework (NSRF) - Research Funding Program: THALES (MIS 379516). Investing in knowledge society through the European Social Fund.

### **Virtual Viking Age in Vestfold: Using 3D Reconstruction to Re-create Cultural Heritage**

**Anne Doksørød** (The Vestfold Museums, Sandefjord)

The centralization of archaeological artefacts and cultural heritage from local districts in Norway to national museums and collections, has always presented a conflict of interest. Artefacts are removed from their original place and placed in a central museum institution where they are to varying degrees displayed to the public. This is especially true for the famous Viking ship burials at Oseberg, Gokstad and Borre in Vestfold. This arrangement presents both opportunities and difficulties. While a concentrated collection of archaeological artefacts will secure better conservation and reach a broader audience, the local communities are robbed of the traces of their history as artefacts are removed from their original context and moved to central museum institutions. This situation creates a paradox: The national museums have the artefacts, but lack the context, while the local communities have the context, but lack the artefacts. How can digital technology help reduce this conflict of interest? Is it possible to bring the artefacts back to their original place, and create engaging and participating experience for the public in situ, using existing and future technical solutions?

### **3D Scanning "Fragmented Heritage": Improving Traditional Techniques in Artifact Analysis**

**Adrian A. Evans** (University of Bradford, Bradford), **Thomas E. Sparrow**, **Danielle A. Macdonald**, **Randolph E. Donahue**, **Andrew S. Wilson**

Scanning techniques with fields of view below 1m can allow recording of whole artefacts and can provide detail of surface texture for analytical techniques. This paper is framed around improving techniques used to understand social organization and cognition. We briefly discuss the use of nanometre resolution imaging and its use for production and functional analysis, and then focus on the application of lower resolution imaging systems for surface capture. Potential techniques are introduced and critiqued with examples of data gathered by these techniques and the issues related to their use. This is followed by examples of how this data can be used to optimise key traditional techniques within artefact analysis including refitting, morphometrics, and functional analysis. Focus is placed on initial data from refitting stone tools based for increasing accuracy and efficiency of techniques are an ability to study larger proportions of excavated samples while at the same time increasing data quality.

### **3D Morphometrics and Lithic Stone Analysis**

**Wei Chu** (University of Cologne, Köln), **Jeroen De Reu** (Department of Archaeology, Ghent University, Gent)

In recent decades, prehistoric archaeology has increasingly focused on creating narratives of cultural behaviour through the lens of stone tool residues. Macroscopic stone tool systematics however, have remained largely unchanged since the early part of this century as researchers continue to rely on visual typologies, basic classificatory forms, and simple orthogonal measurements to draw conclusions. Though 3D analysis has become de rigueur in other areas of archaeology including site excavation, fossil reconstruction, and heritage management, its application to the lithic record has made little headway in spite of clear analytic potential. Despite the ambition of these and other archaeologists to apply 3D recording techniques to new archaeological finds or to the reassessment of key sites, the capital and time required as well as the complexity of 3D registration methods have severely limited its broad application. Recently, however, image-based 3D modelling, a technique for recovering 3D shapes and appearances of objects from 2D imagery, has demonstrated itself as a low-cost alternative to traditional laser-methods. In this paper, I will explore the suite of new metrics made available to lithic analysts and also present a novel dataset from a number of Neolithic ground stones.

### **New Tools in Anthropology: An Evaluation of Low-Cost Digital Imagery Methods in 3D Photogrammetry and Reflectance Transformation Imaging Applied to Fragile Osteological Material with Limited Accessibility: The Case of Rothwell Ossuary**

**Jennifer Gonissen** (University of Sheffield, Sheffield), **Elizabeth Craig-Atkins** (University of Sheffield, Sheffield)

This study investigates whether 3D photogrammetry and Reflectance Transformation Imaging technologies, are well suited for implementation in the field of anthropology. More specifically, it explores the utility of these techniques in the context of working on fragile, less accessible material as well as particularly constraining experimental conditions at the ossuary of Rothwell (Northamptonshire). This testing seeks to ascertain if common anthropological examination of osteological remains through the recording of their anthropometric measurements can be operated on virtually recreated models. It also scrutinises whether features such as skeletal variances of pathological lesions can be well discerned on digital models. The results are aimed to be useful to anthropologists less willing to focus on the technical aspects of these technologies,

but who rather aspire to discern what could be best achieved with these new tools in such challenging working conditions. In essence, this study provides a new way to engage in osteological analysis at the ossuary at Rothwell as a consequence of having highlighted how 3D imagery can be effectively used for proper anthropological analysis. The results of the study are deemed satisfying; eventually, they might allow to create prospects for the conservation of the collection in the ossuary.

### **From 3D Models to 2D Documentation: Presentation, Preservation and Retrieval of Cultural Heritage**

**Nenad Joncic** (University of Belgrade, Belgrade)

Motivated by the needs for fast and accurate documentation, we developed a new system for documenting archaeological artefacts from all types of excavations. Today artefacts are still documented with drawings and photographs. In comparison to the traditional way of documenting archaeological artefacts that is represented by technical drawing and photographing that require a certain skill and are time-consuming to a certain degree, we are proposing a new approach. We decided to use a 3D scanner, with system based on digital cameras and structured light. From the completed 3D models we provided horizontal cross-sections (profile-lines) for documentation, as it would be done by manual drawing. The advantages of working with 3D models are high accuracy and speed, as for a 3D model and cross section, less than 20 minutes is needed. This process also provides photos of the artefacts. Advantages of this way of documenting will be presented, as well as wide use of its results. Not only that the technical documentation from excavation can benefit, but the presentation of artefacts and further scientific analysis is facilitated.

### **3D Puzzle Modeling for Cultural Heritage**

**Corina Nicolae** (Romanian National History Museum, Bucharest), **Vasilica Lungu** (Institute of South-East European Studies Romanian Academy, Bucharest)

Photogrammetry represents nowadays an important tool in the archaeological research. It is a low-cost technology that requires basic technical knowledge and also at hand software and equipment. Together with virtual reality, these new approaches will more and more influence the way in which cultural heritage will be investigated and information disseminated. The aim of this paper is to present the results obtained by using photogrammetry to generate 3D models of ceramic fragments, and, by means of virtual reality, to reconstruct the original geometry of the pottery, adding the 3D models of the parts that survived, like in a 3D jigsaw puzzle.



## **T02S021 - HERITAGE BEYOND BORDERS**

**Organizers:** **Carsten Paludan-Müller** (NIKU, Norwegian Institute for Cultural Heritage Research, Oslo), **Kathryn J. Franklin** (University of Chicago, Chicago), **Gizem Dörter** (Koç University, Istanbul)

This session will focus on heritage that has lost its original constituency, and on heritage that has multiple constituencies. We want to discuss heritage as a medium for dialogue and for understanding of hybridity between identities. Examples could be found among heritage, whose affiliation has been affected by the great geopolitical shifts of the 20th century. This is heritage that we are slowly learning to appreciate as important assets in our thinking about the future. An illustration of what we want to talk about could be Jewish heritage in Germany, German heritage to the east of the German border and Palestinian heritage in Israel. Much of the heritage we are dealing with has its origins long before the nation state. In this context it is relevant to discuss how we can deal with issues of historicity, and the problems caused by heritage in modern national contexts. We are interested in thinking about 'borders' of all kinds-- including both those transcended by heritage ideals and those which can be constructed by claims to heritage and history.

## **ORAL PRESENTATIONS**

### **Constructing and Deconstructing a National Heritage**

**Carsten Paludan-Müller** (NIKU, Norwegian Institute for Cultural Heritage Research, Oslo)

With the 19th Century rise of the nation state, the dynastic identity focus of the state was shifted to an ethnic one. Cultural heritage became one of the instruments for defining "the people" of the new nation state. However until the early 20th century an important part of Europe and the MENA-region was still dominated not by nation states but by multiethnic empires, that had existed for a long time. When those empires disintegrated in the maelstrom of the First World War, new nation states gradually took their place. The whole geopolitical resettling, that ensued, altered the logics of how different ethnies and religions relate to one another and to the states. Consequently what used to be a palimpsest of diverse and often hybrid identities and heritages became challenged by the new logics of the nation state at odds with those of the prior multiethnic empires. The conflicts that we see today across the region also affect and are affected by a cultural heritage that in its diversity bears witness of a long history of coexistence, exchange and hybridity between people that today may struggle to fit themselves and their heritage into the boxes of nation states.

## **Palestinian Heritage between Occupation and Nationalism**

**Ghattas J. Sayej** (Vest-Agder County Council, Kristiansand)

The influence of colonial and nationalistic archaeology have shaped cultural heritage in the Holy Land throughout the past century. After the establishment of the state of Israel, the history of Palestine has been rewritten to adequately fit into the Zionist agenda. Some Israeli archaeologists have paid more attention to some archaeological layers and neglected others. Some of them have not been interested in preserving the complete cultural heritage of the country as a record for all humanity and have instead focused only on those remains relevant to Jewish history and traditions. Those who have the political power maneuvered the cultural heritage of the country as they wish without taking into consideration the vast majority of the local inhabitants who still live in their homeland. A missing link has been established between the past on one hand and the indigenous people on the other. How can we tackle this missing link? Is it by establishing an equivalent Palestinian nationalistic archaeological heritage? We cannot solve the problem by creating a new nationalistic point of view. Archaeological remains do not belong to one ethnic group or to one specific religion. On the contrary, they represent all of those who have lived in the Holy Land since the first human occupation. Cultural heritage among both Israeli and Palestinian societies should transcend ideological concerns and emphasize on the protection of archaeological materials as a common heritage.

## **A Once and Future Border: Offa's Dyke and the Durability of Cultural Frontiers**

**Keith Ray**

Offa's Dyke is Britain's longest ancient earthwork, created by the Kingdom of Mercia in the late 8th century CE, before the unification of the Anglo-Saxon state. Whether it was designed to define the frontier between the English Mercians and the British of what was soon to become Wales remains a matter for debate. That it came to symbolise this division across more than a millennium is less in doubt. This paper explores the unique issues faced in the management of an archaeological monument that not only symbolises a national boundary but also represents in some ways unresolved (and to a degree unexamined) issues of identity both at regional and national scales. In the context of a referendum on Scottish independence in 2014 and pan-European definition and re-negotiation of frontiers, the Anglo-Welsh border setting holds some potential lessons for archaeology and society.

## **Poznan, Posen and Palestine Cityscapes and Contentious Cultural Memories**

**Sandra A. Scham** (Catholic University of America, Washington DC)

During the period between the wars, the cityscapes of Posen/Poznan and Tel Aviv were both subjected to the homogenizing influences of nascent nationalist movements. The histories of the two places became intertwined when a son of Posen, Arthur Ruppin the putative father of the Zionist movement" emigrated to Palestine. After 1918, Germanized Posen became Polish Poznan-and an uncomfortable place for Jews and Germans who got along with each other far better than either did with the Poles. Ruppin had left Posen behind some years before and, acclimated in his youth to the Germanization of his province, established Tel Aviv on that model paving the way for an influx of German architects who created the enclave of Bauhaus on the Yarkon. Today, Poznan is described by the Polish Government as "a modern city" with a "long history connected with the onset of the State of Poland," while the Israeli official cultural heritage website touts Tel Aviv's "White City" as "synthesizing architectural trends of the Modern Movement and integrating them into local conditions." The cultural memories of Posen, Poznan and Tel Aviv today are thus presented as a "seamless" past free from contention and the muddying effects of multiple ethnicities."

## **Silesian Hillforts between German and Polish Archaeological Approaches**

**Karin Reichenbach** (Centre for the History and Culture of East Central Europe, Leipzig)

The paper will focus on the research on archaeological monuments in a German-Polish border region before and after 1945. Taking the example of Silesian research on prehistoric and early medieval hillforts it explores how approaches to these monuments change right along with the shift from German to Polish national affiliation of the region, the complete population exchange, and the reversion of the political system. Analysing the archaeological discourse of the time and giving concrete archaeological examples, the impact of national attitudes and scholarly traditions on research interests and interpretation models will be discussed as well as the function of the given political situations and systems claiming Silesian heritage as "German(ic)" or "(proto-)Polish" and thus as their national belonging. It will be argued, that national concepts and national claims of archaeological heritage from prehistoric and early medieval, that is "pre-national" times, are in the same way social constructions as the national identities and dogmatic historical narratives built upon archaeological monuments.

## **Rosia Montana - A National Problem - An International Matter**

**Katarzyna Jarosz**

The aim of my paper is to present power of social protests, when it comes to protection of archaeological sites. I want to analyse the Roşia Montană case. It is a poor agricultural community in Romania. The history of gold mining in this region

dates back over 2000 years, back to the Roman Empire. In 1997 a Canadian firm, Gabriel Resources, which specialized in mining exploitations and development, bought the exploitation rights for the region of Roşia Montană. Although the company said it would provide new jobs, the scheme's opponents claimed it would destroy the archaeological site and devastate the environment. Different non-governmental organizations, in Romania and abroad, notably Icomos, Europa Nostra and a Alburnus Maior highlighted the destruction of the archaeological sites and the natural environment. Europa Nostra put Roşia Montană on the list of 7 most endangered sites in Europe. The street protests of the "Salvati Roşia Montană" movement quickly snowballed and developed from local to global. People from over 22 countries were joining the movement. Actors, politicians, environmentalists, and writers from all over the world expressed their support. Finally, at the voting the higher chamber of the Parliament rejected the project.

### **Underwater Cultural Heritage in the North Sea, Common Heritage and by Definition Borderless?**

**Sven Van Helst** (Flanders Heritage Agency, Brussels)

The North Sea is considered to be an area rich in archaeological values, not only with regard to historic times (Roman period until present times) but also with regard to prehistory. It has been a maritime region at the center of trade and migration routes throughout the history of mankind in Europe. For example, the ships of the identified shipwrecks in Belgian waters come from 15 different countries. However this unique underwater archive is in danger due to commercial activities such as aggregate extraction, wind farms, dredging, etc. Furthermore the North Sea is divided in a complex set of zones with a different legal regime: territorial seas, contiguous zones, exclusive economic zones,... of the countries surrounding it, resulting in a different jurisdiction over and different national laws applicable on the common heritage within the North Sea. The 2001 UNESCO Convention on the Protection of the Cultural Heritage Underwater sets out basic principles for the protection of this heritage and provides a detailed State cooperation system and widely recognized rules for the management and research of this common heritage. The way forward to an archaeology without national borders?

### **Pitfalls and Potentials: The Politics of Nation States Versus Heritage of Minorities**

**Veysel Apaydin** (Institute of Archaeology, University College London, London)

The concept of heritage has high positive values for people, groups and societies. Surely, heritage has also international value as well. However, specific types of heritage are more important for many groups as they are also representative of identity, memory and belonging. The heritage of minorities has always been an issue for nation states, particularly during the construction of national identity. Hence, destruction, manipulation, or neglect of the minority heritage can be seen in many nation states' history, as with Ottoman heritage in Greece, or Palestinian heritage in Israel. Turkey is a multicultural country where many minority groups live, and approaches to their heritage in terms of preservation, protection, interpretation and presentation are fundamental issues. In this paper, I will explore the perception of minorities' heritage from the construction of Turkish nation state to the present by answering the question: to what extent and in what way have the politics of the state have affected minorities' heritage? How is minority heritage perceived in a globalized and capitalist world at present, with specific reference to Turkey?

### **Harnessing a Highway: Silk Road Heritage and Politics of Flow**

**Kathryn J. Franklin** (University of Chicago, Chicago)

Since the coining of the phrase 'the Silk Road' at the end of the 19th century, that sociocultural phenomenon has proved a compelling concept around the world, evoking images of transhistorical dynamism, romantic commercial integration, crosscultural exchange, flows of exotic wealth, and –most recently– of the free flow of illicit drug trade across borders enabled by the provisional, frictionless anonymity of the Internet. The ongoing fascination with the Silk Road as a flow of human bodies, cultural enlightenment and material wealth which is at once pre-modern and transhistorical is manifest in an intense recent interest in the Silk Road on the part of contemporary nation-states and non-state heritage organizations. Situated along an uplands branch of the late medieval highway in the Republic of Armenia, this paper considers the implications of Silk Road Heritage for the imagination of cultural and political selves, nations, and regions, both in history and in a global future. As the Silk Road is deployed as a material, spatial and historical metaphor both for cross-border cultural cooperation and for transnational commercial development, this paper asks: what are the potential effects of framing the complex Silk Road phenomenon as listable cultural heritage, and as development strategy?

## **POSTERS**

### **Wells to Kill, Wells to Vivify (Archaeological Investigation of Lost Qanats and Wells in Mazinan, Iran)**

**Maryam Naeimi** (University of Tehran, University of Birjand, Birjand)

Mazinan is a village in Northern Khorasan, Iran. The village used to be a center for agriculture of Wheat, pepper and Cotton; in addition, there were number of small processing manufactories. The last autonomous factory was Electricity

factory, closed less than ten years ago. The only major farming product is pepper and vegetables nowadays. It even had lost the dealers of selling peppers. The village is losing its identity and economy. What happened to the great agriculture of Mazinan? The answer might be the misuse of the great wells by the new government agents. What about Qanats (the traditional series of wells related to each other)? Could Archaeological surveying methods trace the Qanats' series to prevent disasters like unknown rings caused the school little girl's unfortunate death and to help flourishing the farming of two significant agriculture products: Wheat and Cotton? Could Archaeological excavation and surveying methods help detecting the Qanat series in addition to accurate study of the historical maps, aerial photos, historical documents such as reports and photographs? In this paper we will discuss the archaeological methods as well as the possibility of archaeologists heading an interdisciplinary team containing architects, agriculture engineers, executive representatives and local representatives?

## Regional Archaeological Camp - ULPIANA, Kosovo

**Kemaji Luci** (Museum of Kosovo, Pristina)

With the initiative of the archaeology sector at the Museum of Kosovo and the support of the OSCE (Pristina), the "Ulpiana Interethnic Archaeological Youth Camp" began its practice in 2004. This was the first camp of its kind to be organized in Kosovo - one which introduced archaeology to high-school students from various ethnic groups living in Kosovo. The Inter-ethnic Archaeology Youth Camp is held in the ancient site of Ulpiana. The aim of the camp is to sensitize the Kosovar youth to the values of Kosovo's cultural and historical heritage. Through lectures, excavations and practical training, participants learnt about the existence, diversity and historical significance of cultural and religious sites in Kosovo, as well as about the importance of archeology to discovery, preservation and promotion. To date, eight archaeological camps with youth of various ethnic backgrounds (Albanians, Serbs and Roma) have been organized (2004-2011). Meanwhile, in 2012, the youth camp expanded to a Regional Archaeology Camp and included participants from all Western Balkans countries. Therefore, the camp continues to be an important foundation for inter-community dialogue and cooperation on the protection of cultural and religious sites in the region.



## T02S022 - PRESERVATION *IN SITU* OR EXCAVATION?

**Organizers:** **Carolina Andersson** (National Swedish Heritage Board, Stockholm), **Dick de Jager** (Municipality of Almere, Almere), **Eva Kars** (EARTH Integrated Archaeology B.V., Amersfoort), **Vibeke Vandrup Martens** (NIKU, Norwegian Institute for Cultural Heritage Research, Oslo)

Is preservation *in situ*, more than twenty years after Malta, still the preferred solution? Practice has shown that that some preserved sites, like Medieval deposits in Swedish towns, have rapidly lost their information due to weathering and erosion. What happens if monitoring shows such accelerated degradation? Will roads and buildings be removed to facilitate a rescue excavation? Or will this mean that the heritage is essentially lost, and that monitoring is a cheap way for the developer to avoid archaeological excavations – and a societal illusion of preserving more than is actually the case? Even if safeguarded, sites are often essentially abandoned and no scientific (protective) measures are taken, resulting in a potential loss of the valuable archaeological heritage. Preservation *in situ* is not the end, but just a beginning. On-site heritage management should include physical protection measures, monitoring of the quality of the site and a design of the surface area that reflects the archaeological value. That would be an attractive way to communicate the hidden heritage which will be usable for the scientific community as well as for the general public. Many sites need to be excavated, while others certainly can be preserved. Let us be aware what we are saving and for whom.

## ORAL PRESENTATIONS

### The Downside of Our Success

**Dick de Jager** (Municipality of Almere, Almere)

The city of Almere is a New Town on reclaimed land in the Flevopolder of the Netherlands. Below the city lies a vast, very well preserved, Stone Age landscape. Because of the city's young age, the municipal archaeologists were able to implement a Malta-proof policy of in-situ preservation. By now, more than seventy in situ preserved sites are visible as open areas within the growing urban area. The sites are mostly Mesolithic, but some are late-Palaeolithic and some are Neolithic. They differ in size from 400 to 40000 square meters. The sites are being designed and equipped in a special way, to help the people of Almere in recognising and appreciating them. Information is transferred to the citizens by means of an educational programme. In this way, the sites strengthen and enhance the identity of the city. They become places where people like to meet each other. However, there is a downside to this success. Because of the highly specialized prospection methods, we only have limited information about the sites. Lack of opportunity and money prevents us from creating added scientific information and individualized archaeological stories.



## Preservation of Archaeological Sites in the Soil: The Current/Common Practice in the Netherlands

**Eva Kars** (EARTH Integrated Archaeology B.V., Amersfoort), **Jos J.W. de Moor** (EARTH Integrated Archaeology B.V., Amersfoort)

In the Valetta treaty we have agreed on: *“a legal system for the protection of the archaeological heritage, making provision for the creation of archaeological reserves,..... for the preservation of material evidence to be studied by later generations”*. In other words, we are responsible to guarantee that these remains still exist in the future! A recent study revealed that between 2007-2011 about 6000 locations in Netherlands were investigated, of which 600 were worth preserving. One third of these sites is currently preserved in the soil. In addition to this, all known archaeological sites and monuments are mapped and listed on the Archaeological Monument Map. This includes also about 1500 sites which are protected by the government. However, very little or nothing is known about the current conditions of these sites. In addition, there is a complete lack of defining conditions for preservation: according to what criteria should sites be preserved, what has to be preserved (type of material, archaeological period) and how should the preservation be carried out? Moreover, there is currently no research agenda for preservation in situ. The often published myth that preservation in situ is cheaper, just illustrates the ignorance.

## Faint Footprints in the Landscape: Preservation and Management of Ploughzone Archaeology

**Natasha Ferguson** (Treasure Trove Unit, National Museums Scotland, Edinburgh)

When discussing the in situ preservation of archaeological sites should we also consider artefacts suspended within the ploughzone? Although not traditionally regarded as ‘in situ’ archaeology, ongoing research has demonstrated that scatters of artefacts relating to sites such as battlefields can retain their spatial integrity after initial deposition. In context artefact scatters can also be integral to the interpretation of upstanding remains. Analysis of this spatial patterning allows the archaeologist to understand the nature of the event, and to determine its physical extent and condition. But what is the most appropriate method to preserve such scatters? In order to truly understand its nature and extent, an important factor in the effective heritage management of such sites, it is often necessary to remove the objects, adopting a preservation through record approach. Does this method serve to enhance the public experience of the site by creating visible heritage? Or does it remove the essence of the site and the potential for future research? As a fragile resource ploughzone archaeology is also extremely vulnerable to the negative impacts of development and clandestine metal detecting activity. This paper aims to explore these issues and to promote artefact scatters as a viable archaeological resource.

## Archaeology after Disasters

**Charles A. Bello** (Federal Emergency Management Agency-FEMA, Denver)

The impact of weather events on cultural resources is a well-known phenomenon throughout the Caribbean, and local governments are often challenged in their ability to address such concerns. However, the potential effects of such disasters can be mitigated by collaboration between various government agencies. Accordingly, this presentation will focus on the recent collaboration between Federal Emergency Management Agency, the Virgin Islands State Historic Preservation Office, and the Government of the US Virgin Islands, to analyze cultural resources and repair Colonial European historic properties that were damaged during recent flash flooding events in Frederiksted, St. Croix, US Virgin Islands. The Federal / Territorial partnership of this project is not aimed merely at repairing damages to the historic sites, but will focus at employing creative measures of site stabilization and restoration of historic features located within the mid-18th century Fort Frederik, a National Historic Landmark. Federally-supported restoration efforts will concentrate on mitigation measures aimed at protecting a multi-component archaeological site containing human remains. In addition to small excavations undertaken to stabilize the eroded areas, the scope of work also supported an in-depth study of human physical remains that were disturbed by the flood waters.

## Is In-situ Preservation Always the Best for Archaeological Sites and Finds?

**Carolina Andersson** (Swedish National Heritage Board, Stockholm)

Archaeological sites and finds are protected in accordance to the Swedish Heritage Conservation Act and all land developments should avoid removal or damage to sites and finds as far as possible. But maybe there are situations or circumstances where in-situ preservation is not preferable. In my presentation I will discuss three different cases where one can question whether in-situ preservation is the best both for sites and finds and for archaeology as a whole. The three cases are; culture layers in medieval cities; archaeological finds in grounds with high acidification and archaeological sites, or part of sites, preserved like small “islands” in areas which are highly exploited.

## Modern Urban Archaeology in Norway

**Lise Marie Bye Johansen** (Norwegian Institute for Cultural Heritage Research-NIKU, Oslo), **Vibeke Vandrup Martens** (Norwegian Institute for Cultural Heritage Research-NIKU, Oslo)

In later years, large development projects have taken place in the Norwegian capital Oslo, causing disturbance of archaeological remains of the listed medieval town. Archaeological remains are protected by the Norwegian Heritage Act, and



development projects should protect these and as far as possible preserve them *in situ*. However, large excavations are expensive and time consuming. Instead of total excavations of the affected areas, heritage authorities have in some cases allowed developers to build on piles on top of the archaeology, with demands for archaeologically supervised augering of the pile points, evaluation of state of preservation and monitoring of preservation conditions for remains left *in situ*. This raises important questions of the information potential on cultural history of the disturbed archaeology. To which extent do auger points give information comparable to excavations? What is the difference between using the method for archaeological prospection and as a replacement for excavation? The authors believe that one needs to refocus, particularly concerning urban archaeology, since the possibility to write cultural history based on urban archaeological sources was the outset of medieval archaeology. This should not be forgotten in the important attempts to evaluate and monitor *in situ* preservation.

### **Preservation *In situ*: An Ideological Mission or a Mission Impossible?**

**Henk Kars** (VU University, Amsterdam)

Since the mid-nineties of the 20th century, the Valetta Treaty tells us that safeguarding our archaeological remains in the burial environment is preferable to excavating them. This has inspired several researchers to investigate how different kinds of archaeomaterials remain preserved in the soil. Based on this research, guidelines have been developed in countries like Norway and The Netherlands to monitor the physical quality of the remains under changing environmental conditions. Today, in these and in other countries, like the UK, several sites are monitored and, moreover, in a number of cases, like the UNESCO site Bryggen, Bergen, Norway, mitigation measures have been taken to stop deterioration of the site. However, by focusing on the development of these preservation strategies, it seems that we are forgetting the most fundamental question why are we preserving the site, seen in light of the research.

### **Preservation *In situ* as a Dangerous Dogma**

**Willem J.H. Willems** (Leiden University, Leiden)

*In situ* preservation has developed into a central dogma of western archaeological heritage management. The paper examines assumptions underlying that dogma and the way in which it works out in practice, both in western and non-western contexts. Bureaucratization and commercialization are seen as important drives behind its rise as a dominating concept in heritage policy. While surely useful in some situations, preservation *in situ* is too problematic in several ways to be acceptable as an ethical principle with broad validity.

## **POSTER**

### **Safeguarding through Scientific Record in Interventions of Minimization and Safeguard**

**Leonor Rocha** (Universidade de Évora, Evora), **Gertrudes Branco** (Universidade de Évora, Evora)

Although the Convention of Malta suggests the preservation “*in situ*” of the archaeological finds, the Portuguese law sustains the principle of “safeguarding through scientific record”, a solution that substantiates the development of “preventive archaeology and heritage safeguarding”. Not only does preservation “*in situ*” allow partial safeguarding of the archaeological information contained in the subsoil, but it also makes the site available for public fruition. However, in Portugal, these places are under the protection of the government, who struggles with the lack of means for its maintenance and disclosure. Archaeological sites that have received investments for their musealization are in visible state of deterioration due to the lack of cleaning, monitoring and maintenance. On the other hand, safeguarding the sites under intervention, on account of safeguard through scientific record, inserted in safeguarding and emergency interventions, has raised relevant questions, such as the qualification of the responsible professionals and the quality of registration, the update of the methods used, as well as the management of the technical information and the collected material, and finally the means of disclosure of the obtained knowledge, taking into account the remaining physical data support, about a place that was scientifically destroyed.



### **T02S023 - ARCHAEOLOGY, ECOLOGY AND PLANNING: COLLABORATIVE APPROACHES TO LANDSCAPE MANAGEMENT AND PLANNING (Round Table Session)**

**Organizers:** **Kenny Brophy** (University of Glasgow, Glasgow), **Chris Dalglish** (University of Glasgow, Glasgow), **Gerhard Ermischer** (Spessart-Projekt), **Benjamin Grahn-Danielson** (Rio Kulturkooperativ, Fjällbacka), **Leif Gren** (Swedish Natural Heritage Board, Stockholm), **Alan Leslie** (Northlight Heritage, Glasgow), **Gavin MacGregor** (Northlight Heritage, Glasgow), **Thomas Risan** (Swedish Natural Heritage Board, Stockholm), **Aphrodite Soro-tou** (Mediterranean Institute for Nature and Anthropos, Athens)

Implementation of the European Landscape Convention remains a challenge given the complexity and heterogeneity of landscapes and the resulting need for more integrated policies and practices. Integration between disciplines, sectors and interests has been identified as a key to achieving better landscape governance and development and addressing the major social challenges facing us - but such integration has yet to be achieved in practice. This session will focus on the need for

greater collaboration between those involved in the study, protection, management and planning of the 'natural' and the 'cultural' in landscape. Modelled on participatory management and planning methods, the session will use real-life scenarios to inspire discussion between archaeologists from different sectors and countries, and experts from other disciplines such as ecology and planning. What can be gained from a more collaborative approach to the cultural and natural heritage inherent in our landscapes? What are the obstacles preventing the development of such a collaborative approach and how might we overcome, circumvent or minimise them? How can collaboration help generate decision-making, planning and development practices which achieve greater synergies between environmental, social, cultural and economic objectives? This session is organised by the European Network for Archaeology & Integrated Landscape Research.

## ORAL PRESENTATIONS

### **Archaeological Study of Architecture of Raw Brick Structures for a Study of Rural Settlements, and Their Well-Conscious Restoration**

**Daniela Pittaluga** (DSA-Università degli Studi di Genova, ISCUM, Genova)

Studies and researches on buildings in clay or mud-brick had been carried out in recent years in the province of Alessandria, Northern Italy, with the purpose to expand the knowledge of these same buildings. This paper focuses on one specific aspect of this research, how to use direct sources to identify the construction date of a building. We call "direct sources" the ones that draw information directly from the building itself. This is in line with the archaeological method, and these are tools that belong to the discipline called "Archaeology Architecture", of which Tiziano Mannoni was a precursor. In case of "minor buildings" it's often impossible to obtain any additional information (archives, ...) about the building beside what directly comes from itself; in this cases these analysis tools are very helpful, and it is very important to improve them. This paper deals with the application in the above-mentioned geographical region of the mensiochronological method to mud-brick buildings, in analogy with what has already been experienced by the structures of baked bricks. In the analysis we started from the comparison of cases in which baked and unbaked bricks were both present in the same building. Stratigraphic analysis was also applied to the same manufacts, for a correct assessment of archaeological data. I conclude that these new tools have a relevant contribution : - to knowledge about materials, constructive techniques, cultural heritage and building cultures - - TO UNDERSTAND socio-economic dynamics relating to the transformation of rural architectures and settlements - - TO UNDERSTAND the reconstruction of local practices of environmental resources management (and their - transformations) through the study of rural settlements.

### **Archaeology after the Planners: What to Conserve, what to Research and what for Future?**

**Mehmet Rifat Akbulut** (Mimar Sinan Fine Arts University, Istanbul), **Seher Başlık** (Mimar Sinan Fine Arts University, Istanbul), **H. Murat Özgen** (Mimar Sinan Fine Arts University, Istanbul), **Yekta Karakulak** (Mimar Sinan Fine Arts University, Istanbul)

How to handle archaeologic excavations through daily life of a resort town without disturbing it whether in physical and social context? Destiny of a small pretty and sleepy town will be changed when it was declared as archaeological site and one day archaeologists arrive. Then a few later planners come. And the story begins. The paper debates around an actual urban planning and urban design activity for an archaeological site where planning team is also in charge of an ongoing excavation in a small summer resort town on the Aegean coast of Turkey. Therefore, probable tension between development, community well-being, conservation of archaeological heritage, as well as architectural and natural values in a culturally and chronologically multi layered environment and management of archaeological excavations through daily routine of the community emerge as major issues to tackle with. The paper narrates as much as it discuss how the problem is considered through participatory and heritage awareness methods.

### **The Landscape Citizens - The Citizen's Landscape**

**Gerhard Ermischer** (ASP - Institute at the University Würzburg, Würzburg)

For an integrated planning approach in landscape we need a strong participation of the citizens. But are we ready to accept citizens as true partners in research, communication, management and planning of landscapes? How can we organize the dialogue and interaction between specialists of various fields, here mainly archaeologists, and interested citizens? Mostly citizens participation in research means using volunteers to do the dirty jobs and as a cheap labour force. Based on 15 years of experience in participative research this paper shall investigate the challenges and obstacles as well as the chances for a true participative research - how to transform volunteers and study objects into partners on an equal footing without losing your own specialists role and responsibility in the process. How to help people to gain knowledge, win confidence and feel empowered to participate not only in the research but also in the political / administrative planning processes. How to enable people to express their own ideas, wishes and needs towards landscape development. And how to identify the significance of the power of places and the meaning of landscape elements for the people. How to give an "emotional" interpretation full rights within an "objective" research process.

## Integrated Management Strategies for Heritage Conservation and Sustainable Development

**Aslı Zeren** (Politecnico di Milano, Milano)

Today protection and management of urban heritage became more difficult, complicated and overwhelming due to rapid urbanisation, population growth, rapid and often uncontrolled growth of tourism and immigration. In today's global world, cities are changing, evolving and so is heritage understanding. New management approaches are being designed for an improved understanding of current mechanisms and for better integrating urban heritage conservation into strategies of socio-economic development in the region. This paper focuses on the analysis of current approaches and management strategies for the sustainable protection of UNESCO World Heritage Sites based on the Historic Urban Landscape approach. It takes two UNESCO World Heritage Sites in Turkey and Italy as its case studies in order to analyse the management performance, key problems and challenges on protecting and managing urban heritage within World Heritage context. The paper investigates current heritage practices, challenges and threats to the Outstanding Universal Value, authenticity and integrity of the World Heritage Site in historic urban environment. Then through analysis of gathered data based on diverse challenges and heritage context of each site, it aims to provide innovative ideas and suggestions to formulate appropriate management measures for the protection of cultural heritage and socio-economic development of the region.

### POSTER

#### The Relation of the Past Human Activity and the Biodiversity of Molluscs and Plants and the Question of Their Mutual Protection in the Area of Tvořihrázský les, The Czech Republic

**Jarmila Bišková** (Department of Archaeology and Museology, Masaryk University, Brno), **Hana Lukšíková** (Masaryk University, Brno), **Richard Bíško** (Masaryk University, Brno)

Tvořihrázský les is an old and extensive forest complex in the southern part of the Czech Republic. It is located in the ancient settlement area intensively studied since 1950's. Until 2007, the attention was mainly focused on non-forest sites. The Department of Archaeology and Museology of Masaryk University started a systematic survey in 2008 which revealed well preserved anthropogenic relicts from several periods. The local forest management is confronted with a preservation of the archaeological heritage and the nature conservation. The main aim is the study of the richness of diversity of vegetation and mollusc spectrum in the prehistoric and medieval relicts and its close surroundings. There will be tested the presence of the human activity in the surrounding areas, which do not display a visible anthropogenic impact on the surface. Are the human relicts in the woodland the enriching elements in the landscape? If so, in which way are we able to identify them? Do the differences among settlements, gardens and burial sites exist? For answering the questions, three different prehistoric and medieval sites were chosen in the area of Tvořihrázský les: the first is the prehistoric hillfort Suchohrdly - Starý Zámek, the second are the barrows Suchohrdly – Purkrábka and the third are the extinct medieval village gardens Tvořihráz – Psáry. On these sites, malacozoological and botanical surveys were realised. The results are supposed to show the comparison of the site and its surroundings and the comparison of the sites among each other. In the case of proving the increasing biodiversity in the areas with past long-term human activities, the matter of the mutual preservation and conservation of the archaeological and natural heritage arises. Therefore, dealing with the protection of the heritage we should not separate these two matters from each other.



#### T02S025 - ON THE FUTURE REALITY OF THE PAST. MATERIAL, IMMATERIAL, AND VIRTUAL HERITAGE IN THE 21ST CENTURY

**Organizers:** **Suzie Thomas** (College of Social Sciences, University of Glasgow, Glasgow), **Luiz Oosterbeeck** (Instituto Politécnico de Tomar, Instituto Terra e Memória, Abrantes), **Dragos Gheorghiu** (Doctoral School, National University of Arts, Bucharest), **Styliani Kaltsogianni** (Department of Archaeology, Aristotle University of Thessaloniki, Thessaloniki)

The discovery, reconstruction, display, and transmission of material heritage constitute a major cultural problem of the 21st century. A similar tendency could be identified with immaterial heritage. Ancient technologies, as well as those of traditional societies are recovered and presented to the public by means of scientific experiments and re-enactments. The last decade digital technologies allowed the development of a new archaeological discipline, Virtual Archaeology, whose role is to represent, reconstruct, and preserve the [incomplete] material heritage. The amount of information offered can be augmented by mixing different media, producing an augmented or a mixed reality. Taking into account these contemporary trends to approach both material and immaterial heritage, the present session is an invitation to propose and discuss new methods to improve the "reality" of the Past, as well as to present current research, which brings new contributions to the 21st century research on this subject. It will also discuss the epistemological implications of the new virtual reconstructions of the Past.

## ORAL PRESENTATIONS

### From Excavation and Recording to 3D Visualisation: Digital (Re)Construction as a Process of Knowledge Production

**Constantinos Papadopoulos** (University of Southampton, Southampton)

Three-dimensional visualisations are one more layer in the palimpsest of archaeologists' cultural production which is gradually built during the various stages involved in their work, e.g. excavation, recording, study, publication etc. In all these very different stages, knowledge is produced both by the processes themselves and the context of these processes, i.e. the people involved, the conditions under which these processes take place, as well as other factors which act independently of the other two. These variables however, which lead to the production of knowledge in the form of an image have remained under-explored. This paper will add a piece in the puzzle of knowledge production in digital reconstruction by evaluating strategies and factors that influence perception, depiction, capture and reproduction of real and digitally simulated three-dimensional information. Finally, it will highlight and also demonstrate through examples the power of this approach as an inseparable element of any fieldwork project, as well as its transformative impact on archaeological sense-making.

### Data and Interpretation in the Digital and Virtual Worlds

**Andrea Vianello** (Independent researcher, Sheffield)

Archaeology has the advantage of being founded on material evidence able to last millennia. Interpretations build on these foundations, but often take some liberties to understand the meaning of it all. The use of virtual reality in archaeology enables to use experimental and phenomenological methods on a grand scale and helps involving the public through digital presentations making use of multimedia. The two main uses are at odds: presenting facts must be clearly separated from testing hypotheses. This pitfall also affects interpretations, but data and theories are easy to separate in that context. Rather than advocating fixed guidelines to be implemented by all, I suggest that data should always be clearly presented and distinguishable from any reconstruction or form of enhanced reality. This already happens with restoration works, where original and reconstructed parts are deliberately recognisable with little effort. As digital technologies advance, it will be increasingly difficult to separate between the two and ultimately build on previous work, and this does not apply only to virtual reconstructions. It is necessary to embrace new technologies and engage the public, but archaeologist must be aware that producing fiction is not their task.

### A Virtual Reconstruction

**Cecilia Gustavsen** (Vestfoldmuseene, Sandefjord)

Slottsfjellsmuseet, a museum in the medieval town Tønsberg in Norway, is participating in a working group that will improve, renew and develop the well-known archaeological site: The medieval castle of Tønsberg. Today's remains consist of ruins, and there are only a few information spots. However, we have made an agreement with our sponsors about presenting the sight through virtual reconstructions and other sorts of digital presentations, like a development of mini-games and raw playing games connected to the sight, the castle and persons who stayed there during the Medieval period. Last year, we made our first virtual reconstruction of the castle as it could have looked in 1372. New results from geophysical methods show new structures on the site, which is of interest in future reconstructions. In this paper I will discuss the advantages and drawbacks by virtual presentations in the light of our archaeological site, *Castrum Tunsbergis*.

### Augmenting the Reality of the Material and Immaterial Past

**Dragos Gheorghiu** (Doctoral School, National University of Arts, Bucharest)

Cultural heritage is a complex material and immaterial palimpsest, composed of the material culture, and the gestures of making and using the objects. To identify, store, and transmit this data on the tangible and intangible heritage recent technologies may be used, such as Mobile Augmented Reality, that allow the detection of the archaeological Points of Interest, and the display of an augmented layer of information for that place. By augmenting the reality of a site with Virtual Reality reconstructions, and by augmenting the VR graphic displays with images drawn from reality, one can achieve a virtual-real continuum that allows a greater understanding of the tangible and intangible heritage of that place. This virtual-real continuum enables an augmented perception of the subject, by combining the hyper-reality of virtual images with the augmentative evocations of the palimpsests made of images and texts. The paper will present a MAR application inspired from the fractal paradigms to display layers of augmented information for different archaeological POIs, starting with VR architectural reconstructions and leading up to technological gestures recovered with the help of experimental archaeology. The MAR application can also play an important educative role, by virtue of its ease of navigation via mobile devices.

## Intersecting the Professions of Archaeology and Architecture through a Cloud-Integrated Workflow

**Gregory MacNeil** (Jerry MacNeil Architects Limited, Halifax), **Sara Beanlands** (Boreas Heritage Consulting Inc., Halifax)

The Thibodeau 2 Site, a multi-component site within the community of Poplar Grove, Nova Scotia, Canada represents a cultural landscape and BIMx Hyper-model modeling case study. The site is situated within a large dairy farm, whose owner is a direct descendent of the Planter family granted the land in 1760. The material remains preserved in the landscape are that of the Thibodeau Village, a pre-deportation Acadian community that settled in the late seventeenth century. Based on the subsurface features Archaeological investigations began in 2012. The site exploration utilized image and non-imaged based technologies that included REDM total station, close range photogrammetry, Lidar, aerial photography, EM38, multi-light imaging, BIM and BIMx Hyper-model. Virtual 3D models were constructed of buildings formally and presently associated with the site including their time specific landscapes, thus providing a 3D model context to access the hyperlinked 2D documentation. Applications such as BIMx Hyper-model can be uploaded to Apple and Android smart devices and represent a unique technology that brings the archaeology site into the dynamic touchscreen environment. Intersecting professions of archeology and architecture were incorporated through a cloud-integrated workflow adding to the Cultural Landscape terms “research related” and “planning related” a new virtual vantage point.

## A Museum for Alfedena (AQ, Italy) Town of the Samnites. Virtual Archaeology and Identity Management

**Cantisani Matteo** (Quaternary, Materials and Culture, Department of Geology, University of Trás-os-Montes e Alto Douro, Quinta de Prados, Vila Real), **Console Marco** (Computer Sciences at Sapienza University, Roma)

A lot of virtual museums have been developed, made up by simple audio-visual contents as well by a more complex suite of tools, including also 3D viewer tools to make visitors capable of enjoying the tour. What shall be the scientific purposes addressed by the virtual museum in the ICOM framework still remain difficult to focus on. Alfedena needs a museum not only capable of endorsing the archaeological regional heritage but also of improving its scientific inquiry. By this reason the creation of an interactive web portal is suggested by using a content management system software to charge 2D as well as 3D heterogeneous data. The CMS protocol will help a functional integration between interactive find tool by TAG means and scientific inquiry of both metadata and 3D PDF objects catalog. This model shall represent a scientific and didactic tool at once, unconventional and capable of refreshing the coping among the local community and the archaeological and historical local heritage by enforcing archives, studying and consulting tools as well. Hence, local user and researcher will be able to visit, record, catalog and research online using the different types of interactive tools thanks to the content management system software adopted.

## Virtual Reality and Design. Some Considerations about the Target and the Actors to Bridge Society and Archaeology. Examples from the Middle Tagus Valley, Central Portugal

**Davide Delfino** (Abrantes Municipality, Land and Memory Institute, Quaternary and Prehistory Group of Geosciences Center Coimbra University, Abrantes), **Luiz Oosterbeeck** (Polytechnic Institute of Tomar, Land and Memory Institute, Quaternary and Prehistory Group of Geosciences Center Coimbra University, Abrantes)

The use of 3D technologies becomes increasingly relevant in various scientific fields, not only for research, but also as a means to communicate with the public and to socialize new knowledge. Archaeology is a perfect example of this trend, a discussion being relevant to assert, within the wide range of 3D tools, which are the most adequate to convey knowledge of the territory's archaeological Heritage through virtual archeological reality. Archaeological Heritage should have a social purpose and any tools used to enhance it should impact beyond their educational or scientific purpose, even if this is their core role. The paper discusses this issue, namely in relation to micro-economic growth, namely in economically depressed areas. The guidelines and the first actions pursued in the Middle Tagus Valley, namely in Mação and Abrantes, involving artists and 3D experts, in projects such as Time Maps and GestArt, are presented and discussed.

## Virtual Heritage and Community Co-Production: The Accord Project

**Stuart Jeffrey** (Glasgow School of Art, Glasgow), **Alex Hale** (The Royal Commission on the Ancient and Historical Monuments of Scotland, Edinburgh), **Sian Jones** (University of Manchester, Manchester), **Phil Richardson** (Archaeology Scotland, Musselburgh)

Despite their increasing accessibility, techniques such as laser scanning, 3D modelling and 3D printing have remained firmly in the domain of heritage specialists. Expert forms of knowledge and/or professional priorities frame the use of digital visualisation technologies, and forms of community-based social value are rarely addressed. Consequently, the resulting digital objects fail to engage communities as a means of researching and representing their heritage, despite the now widespread recognition of the importance of community engagement and social value in the heritage sector. The ACCORD project addresses this gap through the co-design and co-production of an integrated research asset that encompasses social value and engages communities with transformative digital technologies. The ACCORD project examines the opportunities and implications of digital visualisation technologies for community engagement and research through the co-creation of three-dimensional (3D) models of historic monuments and places. ACCORD is creating a permanently archived open-access



dataset of community co-produced 3D digital models of archaeological sites and monuments, integrated with expressions of social value and contextual documentation. The AHRC funded ACCORD project, is a partnership between the Digital Design Studio at the Glasgow School of Art, Archaeology Scotland, the University of Manchester and the Royal Commission on the Ancient and Historical Monuments of Scotland.

### **The Well Trodden Path: Reality and Authenticity in Heritage Presentation**

**Esther Renwick** (University of the Highlands and Islands, Lerwick)

Virtual archaeology has massive potential as a tool for constructing realities. However, faced by these exciting new possibilities now is perhaps a good opportunity to stop and consider what we are interpreting, rather than risk prioritising the medium over the message. The heritage tourist literature is full of loaded descriptions such as ‘experience’ and ‘imagination’. Visitors arrive prepared for an “aura of authenticity” (Jones 2009) where tangible and intangible heritages combine. This paper is based upon research into the potential of theoretical archaeology to tackle the dichotomy between the experience of the modern visitor and conceptualisations of the experience of the site in the past. Illustrated by a comparison of Google Earth tours of Stonehenge and Pompeii, and other World Heritage Site case-studies, this paper argues that presentation needs to be taken back to basics and emphasis put on common human experiences and concepts before adding extra layers of interpretation. A key dimension of the daily human experience is movement and access; this paper postulates that the sequence of encounter and knowledge of controlled spaces play a vital role in creating a more ‘authentic’ and realistic experience, whether actually on the site itself, or moving through a virtual world. References “Experiencing Authenticity at Heritage Sites: Some Implications for Heritage Management and Conservation” *Conservation and Management of Archaeological Sites* Vol 11, No. 2, May 2009 133-47.

### **Virtual Heritage - Different Ways of Experiencing the Monuments**

**Rafal Zaplata** (Cardinal Stefan Wyszyński University in Warsaw, Warsaw)

This paper aims at summarising experiences connected with the use of virtual reality in presenting, experiencing and researching heritage. Nowadays, digital methods are very often the only means of presenting artefacts (as digital copies). This might be a cause for concern and reservation. Therefore, a discussion about the meaning and place of digital copies and virtual reality within the cultural heritage sector is needed. The above mentioned problems will be analysed, first of all, in the context of augmented reality and virtual reality. Provisional research results about the perception of virtual (digital) and real heritage objects by potential users (tourists and scientists/conservators) will be presented. Such a confrontation of experiences resulting from both forms of contact with heritage will be an argument in the discussion of further actions within the, broadly understood, digitization of cultural heritage objects. Theoretical discussion about virtual heritage is the part of works performed within the frames of the scientific project “Utilisation of laser scanning and remote sensing in protection, research and inventory of the cultural heritage - Development of non-invasive, digital methods of documenting and recognising the architectural and archaeological heritage” which has been performed by the Cardinal Stefan Wyszyński University in Warsaw (Poland).

### **The Life and Death of Virtual Çatalhöyük in Second Life**

**Colleen Morgan** (University of York, York)

From 2007 until 2011, OKAPI Island in Second Life hosted a virtual reconstruction of the Neolithic village of Çatalhöyük. This simulation included reconstructions of current excavations, past and present life ways at the site, a virtual museum, and hosted several forums and open days. Using the reconstruction we hosted a mixed reality session, filmed machinima, held university lectures, and collaborative virtual building sessions. OKAPI Island in Second Life was an incredibly fertile proving ground for re-thinking our assumptions about archaeological interpretation and outreach. When Linden Labs, the makers of Second Life, decided to end the educational discount that made OKAPI Island affordable, a team of students and professors at the University of California, Berkeley made the effort to preserve the virtual reconstruction by record, a process that is familiar to archaeologists. After the “death” of a virtual reconstruction of an archaeological site, what lessons can be learned about digital materiality and preservation? How can we use the example of Çatalhöyük in Second Life to inform our future reconstructions? What is next for collaborative virtual work in archaeology?

### **Virtual 3D Museum of Neolithic Culture. Artefacts, Technology and Imagining**

**Petr Kvetina** (Institute of Archaeology CAS, Prague), **Hana Brzobohata** (Institute of Archaeology CAS, Prague), **Pavel Burgert** (Institute of Archaeology CAS, Prague), **Marketa Koncelova** (Institute of Archaeology CAS, Prague), **Ivan Pavlů** (Institute of Archaeology CAS, Prague), **Jiri Unger** (Institute of Archaeology CAS, Prague), **Jaroslav Řídký** (Institute of Archaeology CAS, Prague), **Radka Sumberova** (Institute of Archaeology CAS, Prague), **Petr Vavrecka** (Institute of Archaeology CAS, Prague)

The aim of the paper is to present an ongoing project devoted to the virtual museum of the Neolithic. The goal is to provide a picture of the European Danubian Neolithic culture, based on the example of the settlement in Bylany (Czech Republic), dating from the 5th – 6th millennium B.C. The main parameter of the described project is to set up a methodology for



recording and presenting ancient artefacts and technology. The basic technology is optical 3D scanning of artefacts that exactly reflect the 3D surface geometry and will bring new presentation possibilities. Acquired digital records can also serve for research and educational purposes on all academic levels. The project's most important output consists in a virtual museum on the web ([www.archaeo3d.com](http://www.archaeo3d.com)). This platform will interconnect a classical static approach of exhibiting artefacts (in form of open library of 3D scans) with dynamic level including videos and interacting features. In this way, both materiality and ancient technologies will be presented.

### Exhibiting the Intangible: The Case of a Myth

**Anastasia Chourmouziadi** (University of the Aegean, Mytilene), **Dimitris Sphakianakis** (University of Crete, Crete)

Greek myth, although ubiquitous in the material remains of the past, when we discuss the museological management of the archaeological record, is rarely -if ever- present among the parameters that are taken into consideration. Mythical heroes and episodes are, simply, used as descriptive attributes of artifacts, whose artistic qualities, stylistic classification or, less often, use are the main focus of the exhibition narrative. This paper discusses an effort to exhibit the myth per se, detached from the fragments of its reified presence. An effort to present it as an essential toolkit for the understanding and the management of life. Not as a childish version of history, but as multifaceted, multifarious and multivalent, a fluid ever-changing phenomenon, with remarkable longevity. Albeit deeply archaeological, such an approach, sets aside the typical elements and methods of an archaeological exhibition, and exploits the potential of digital technology in an attempt to balance between poetic irrationality and scientific scrutiny. In other words, this paper explores the possibility of presenting the imagination of a people as a mesh of intermingling gazes, conflicting -although neighbouring-, or converging -although remote in space and time.

### Christian Monuments of Caucasian Albania

**Natiq Alishov** (Department in Ancient Archaeology and Ethnography, Azerbaijan National Academy of Science, Baku)

Propaganda of Christianity in Albania began in the 1st century AD, but it was adopted as a state religion in the first half of the 4th century AD (313-326) during the rule of Albanian king Urnayr. In the 8th century Albanian church became Monophysite sect. But a part of the population remained the Diophysite sect. In the Middle Ages Kambisena (VIII-XI centuries), Syunik (XI-XII centuries), Khachin-Albanian kingdoms were the heirs of Christian Albania. Albanian Catholicos was abolished in 1836 by the decision of the Synod of the Russian Empire. 150 churches have been involved in my work on my research study. There are hundreds of churches, however, pending the investigation. All the historical monuments in the area are protected by law. Some of them are used as museums and churches. For example, Gabala, Sheki, Gah and the Nagorno-Karabakh region. Religious beliefs are not prohibited by tolerant Azerbaijan state. April 10, 2003 Azerbaijan receives registration of Albanian-Udi Christian community and revived the Albanian Apostolic Church. Many Christian monuments remained in the territory of Azerbaijan are still protected as a holy historical monuments and used by the local population. These monuments belong to the culture of our people.

## POSTER

### Advantages and Disadvantages of Using PXRF in Europe on Ceramics, Metals, Paintings, Stone, and Bone

**Robert H. Tykot** (University of South Florida, Tampa)

The use of non-destructive methods to determine the composition of archaeological materials has expanded considerably in recent years with the availability of portable X-ray fluorescence spectrometers, and hence the ability to conduct analyses on museum-quality objects. The opportunity to remove samples for analysis, or to take such samples or entire artifacts to an external laboratory for analysis has decreased, and even forbidden in certain countries. The major element composition of metallic objects allows correct descriptions (e.g. copper, bronze, brass, slag), as well as revealing differences in multi-part objects, changes over time, and potential mis-attributed artifacts or forgeries. Similarly, pXRF has been used to identify the paint in prehistoric caves and burial chambers, on pottery, and on historic paintings, as well as the composition of a wide variety of materials. The ability to detect trace element fingerprints" may identify local vs. non-local pottery and lithic materials, and their "history" of mobility and socioeconomic significance. While providing important information for use in museum exhibits as well as academic studies, pXRF users must be aware of its limitations, including detection limits and which elements can be measured, potential heterogeneity of the material being tested, and comparison with analytical data from other studies."



### T02S026 - FROM TURKEY TO NORTH AMERICA: SCHOLARLY DISCOURSE ON THE ARCHAEOLOGICAL HERITAGE OF TURKEY

**Organizers:** **Elif Denel** (American Research Institute in Turkey-ARIT, Ankara), **Matthew Harpster** (Classics, Ancient History and Archaeology, University of Birmingham, Edgbaston, Birmingham)

Since the initial stages of archaeology as an intellectual discipline, the cooperative atmosphere between North America and Turkey has grown considerably. Archaeological expeditions from the United States and Canada have had a significant

presence across Turkey's landscape through their targeted investigations leading to insights about past societies and developments of methods and theories fundamental to investigating the past. The recognition and value of this longstanding dynamic is best demonstrated through the knowledge that emerged in Turkey and impacted studies far beyond those borders. The papers in this session will focus on the innovative questions and methodological approaches emerging from this international archaeological collaboration, and their impact on our knowledge of Turkey's past, the surrounding region, and on conducting historical and archaeological research.

## ORAL PRESENTATIONS

### **Digging in Tarsus: The History of the American Gözlükule Excavations and Its Impact on Current Research and Heritage Management**

**Aslı Özyar** (Boğaziçi University, Istanbul)

The American excavations at Tarsus, Cilicia in the 1930's directed by Hetty Goldman, were designed to provide answers to research questions about Eastern Mediterranean chronology. The impact of this initial project went, however, well beyond the immediate academic concerns of the director after the publication of the fieldwork results. The Tarsus volumes documented an unprecedented 7000 years of continuity in a settlement site by presenting carefully selected material evidence and plans of occupational levels. Although the excavation team had not been actively interacting with Turkish academia, which at the time was only beginning to be interested in archaeology, the published volumes had a profound influence on their formation, the establishment of a chronological framework as well as on Turkish and international research paradigms for Anatolian Archaeology. The recently re-opened excavations at the site reflect a new era in Turkish-American research cooperations. The 20th century American contribution to early investigations on the mound is now acknowledged and highlighted as part of the cultural heritage of the site and region. The 21st century Tarsus explorations are defined by the concerted effort of scores of Turkish and international scholars and students to investigate, document and preserve the remains of this remarkable settlement mound.

### **The Bay of Iskenderun Survey: Approaches to Documenting Southeastern Cilicia's Archaeological Landscape and Heritage**

**Ann E. Killebrew** (The Pennsylvania State University, State College)

Encompassing the Issos, Iskenderun and Arsuz plains of southeastern Cilicia Pedias ("Flat Cilicia"), the Bay of Iskenderun Landscape Archaeology Project documented nearly 200 archaeological sites during six seasons of survey (2004–2009). It represents the first large-scale, multi-season and systematic archaeological investigation of this region. The survey's goals included the compilation of an inventory of archaeological remains in an area experiencing rapid urban and commercial development, together with the examination of this region as an interface of cultural exchange between the Mediterranean, Anatolia, and the Levant. To achieve these goals, a wide variety of extensive and intensive survey techniques were employed to identify and map observable archaeological features. The extensive methods adopted by the survey included the systematic investigation and mapping of sites that had been first identified by earlier travelers' accounts; site descriptions from a handful of earlier and limited archaeological surveys; and local informants. Intensive survey methods to locate undiscovered archaeological sites included the identification via high-resolution satellite imagery of a representative sample of different landscapes that would be suitable for systematic pedestrian survey. A discussion and evaluation of these combined approaches to archaeological survey, their effectiveness, and implications for heritage management will be discussed in this paper.

### **The Funerary Steles of Antioch on the Orontes in Turkey and in the United States of America**

**Evrin Güven** (Bilkent University, Ceror-Université de Jean Moulin Lyon III, Ankara)

The funerary steles of Antioch on the Orontes and its surrounding areas dating from Antiquity are so numerous that they deserve a thorough study. However, none of the researches performed throughout 20th century offers a comprehensive and illustrated corpus. Besides, the material discovered during the excavations that were conducted by Princeton University in 1930s, had been shared between Turkey and the United States of America. Therefore, the documentation in the Museum of Archaeology in Antakya does not inform us precisely on the results of those excavations, which are housed currently in the Art Museum and Departmental Archives of Princeton University. Observing such deficiencies in the preliminary studies, we set out to conduct an extensive research as a major component of our doctoral research, in the Art Museum and Departmental Archives of Princeton University and the Museum of Archaeology in Antakya. We shall present the researches we have done to determine the number of the steles catalogued during those excavations, to correlate accurately the Turkish and American records, and to identify the conservation places and provenances of steles whose track had been lost.

## **Hatay Amik Ovası Archaeological Park Project: International Collaboration, Community Engagement, and Long-Term Sustainability**

**Timothy P. Harrison** (University of Toronto, Toronto), **Murat Akar** (Koç University, Istanbul)

The Hatay Amik Ovası Archaeological Park is the product of an ongoing, long-term collaboration to establish an open air archaeological park encompassing the sites of Tell Atchana (ancient Alalakh) and Tell Tayinat (ancient Kunulua), located on the Plain of Antioch in southeastern Turkey. The park project seeks to preserve the rich cultural heritage of these two adjoining sites, with their complementary settlement histories, that highlights the regions historic role as a strategic crossroads between highland Anatolia and the lowlands of northwest Syria. The project is the culmination of decades of fieldwork that has documented the archaeological and historical significance of both sites and the surrounding region. The results of this conservation program will present a visually commanding view that conveys the quintessential monumentality that was an integral feature of Syro-Hittite art and architectural expression during the Bronze and Iron Ages (ca. 3500-500 BC). This paper will focus on the collaborative experience of the two field projects which, despite their differing research objectives and field strategies, share a deep commitment to preserving the remarkable cultural legacy that defines the region, and inextricably binds the two settlements together. Particular attention will be devoted to the regulatory hurdles that have been faced, land ownership issues, community engagement, fundraising, and the challenge to achieve long-term sustainability.

## **International Collaboration Leading to World-Class Innovation: The Case of Kerkenes Dağ**

**Scott Branting** (University of Chicago, Chicago), **Sevil Baltalı Tirpan** (Istanbul Technical University, Istanbul)

For over twenty years, the Kerkenes Dağ Project has been a partnership of international collaboration between foreign and Turkish archaeologists, local participants, and specialists in a wide range of related disciplines. Specific innovations that have grown out of this long and fruitful collaboration include: wide-area geophysical landscape surveys, large scale micro-topographic GPS point cloud surveys, agent-based predictive pedestrian transportation simulations, and physical mapping of local site narratives. This paper will provide background on the collaboration behind these innovations, explore why this project has been so fruitfully innovative, and look to the future of these ongoing collaborations.

## **From the New World to the Old One: American Archaeologists in the Ottoman Empire**

**Fahri Dikkaya** (Bilkent University, Ankara)

American archaeological projects have played crucial roles in founding theoretical and practical contexts of Anatolian archaeology and of wider Near Eastern archaeology. The Ottoman Empire is, with Italy, a place where archaeology began. The archaeological past of the empire took in Ancient Greece, the Roman, Anatolian and Mesopotamian civilizations and Ancient Egypt. In this context, some American archaeologists came to Ottoman geography in order to unearth some important archaeological sites in the Empire. This paper aims to survey their publications and to analyse their archaeological praxis, especially in the context of Anatolian archaeology.

## **Protestant Archaeology: Scientific Christianity at the American Board Anatolia College in Merzifon, Turkey**

**Peri A. Johnson** (University of Texas, Austin)

Archaeology as a discipline of modernity was built into the changing educational landscape of the late Ottoman Empire, and this was particularly so at the American Board missionary colleges established in the nineteenth century. George E. White, first as an instructor then president, was the principal proponent of archaeology at Anatolia College in Merzifon, a city inland from the central southern Black Sea coast. Not only did White establish an archaeological club and lead students on archaeological excursions in the environs of Merzifon, but he also undertook expeditions to Boğazköy where he excavated several tablets now in the collections of Grinnell College, Iowa, and collected antiquities while vacationing and on tour to Protestant communities around Merzifon. This paper examines the activities of White and how archaeology demonstrated a scientific, Protestant Christianity to the Orthodox communities of the Ottoman Empire. Long familiar with the argument of Archibald H. Sayce for a Hittite Empire, White studied under Sayce in 1907 at Oxford and regularly sent artifacts to the British Museum in return for information. The mission in Merzifon, located near the center of Sayce's Hittite Empire, specifically allowed White to formulate a rational perspective on the Old Testament based on philological study.

## **American Archaeologists in Eastern Turkey during the 1960s: The Joint Istanbul-Chicago Expedition and the Keban Dam Rescue Project**

**Laurent Dissard** (University of Pennsylvania, Philadelphia)

This paper first examines two archaeological projects in Eastern Turkey initiated by American and Turkish colleagues during the 1960s. 1. The Joint Istanbul University - University of Chicago expedition in the Diyarbakir region led by the Braidwoods and Halet Cambel, which was key in introducing new archaeological theories and methods in Turkish Archaeology. 2. The Keban Dam Rescue Project on the Upper Euphrates, which is still considered today a "turning point" in the discipline of Anatolian Archaeology. I then analyze the larger social and political context of the 1960s within which these two projects

were undertaken. More broadly I ask what effect did the Cold War have on Turkish-American relations that would have influenced, more specifically, the practice of scientific archaeology in Turkey at the time.

### **Byzantine Roots of American Archaeology in Modern Turkey**

**Günder Varinlioğlu** (Research Affiliate, Istanbul)

The American-Turkish collaboration in archaeology and related fields has benefited greatly from the pioneering projects of conservation and architectural documentation of the Byzantine heritage of Istanbul. Driven by the Byzantine Institute's study and conservation of the mosaics of St. Sophia in 1931, American institutions, scholars, and donors were increasingly involved in the exploration of Turkey's Byzantine cultural heritage. This required the establishment of financial, administrative, and logistical cooperation, facilitated mainly by individuals based in Turkey. In these efforts, Robert College, an American school of secondary and higher education in Istanbul, played a fundamental role. Its facilities, staff, and students proved to be indispensable for American research in Istanbul. On the American side, Dumbarton Oaks of Harvard University, which took over the Byzantine Institute's projects in Istanbul in 1950, has functioned as the financial and intellectual driver of Byzantine fieldwork in Turkey until 1978. The foundation of the American Research Institute in Turkey in 1964 owes greatly to more than three decades of close collaboration between Turkish and American art historians, architects, and archaeologists. This paper thus explores the beginnings of the institutionalization of the Turkish-American collaboration in the context of the American interest in the Byzantine heritage of Turkey.

### **A Half Century of Growth in the American Research Institute in Turkey**

**Elif Denel** (American Research Institute in Turkey, Ankara)

The growth of American interest in archaeology and history of Anatolia and neighboring regions throughout the late 19th and the first half of the 20th centuries culminated in the founding of the American Research Institute in Turkey (ARIT) 50 years ago. In addition to the main US center at the University of Pennsylvania in Philadelphia, two centers in Istanbul and Ankara started operating in 1964 in response to a growing need to facilitate research in a wide range of fields concerning Turkey, including archaeology, history, language, social sciences and humanities. Interaction, collaboration and discourse between Turkish and North American scholars as well as those from different national backgrounds contributed to substantial progress in these fields. The long history of ARIT emphasizes a vibrant past of scholarly exchange, cultural diplomacy, public education, and heritage preservation. This paper will provide an overview of the 50 years of ARIT's contribution to the growth of scholarship on the heritage of Turkey.



### **T02S027 - SITE MANAGEMENT PLANS AND PRACTICES IN ARCHAEOLOGICAL SITES (Europa Nostra Turkey's Session)**

**Organizers:** **Nuran Zeren Gülersoy** (ITU Faculty of Architecture, Istanbul), **Ege Uluca Tumer** (IKU Faculty of Architecture, Istanbul), **Ebru Torun** (University of Leuven-KU Leuven, Sagalassos Archaeological Research Project, Leuven), **Daniel Shoup** (University of Bologna, Bologna)

Management of heritage sites has become a more widely discussed concept in last ten years after it was highlighted in the 'Operational Guidelines for the Implementation of the World Heritage Convention' of 2005. The management plans are thought to be the implementation tools for achieving a balance between the conservation and restoration of cultural heritage, the priorities and needs of local community, and development of tourism and economy. The management plans take the task of a framework that set forth the guidelines for future decisions and aim to ensure conservation of significance and values of the site and its sustainability, and to help the local community and visitors in appreciating the significance and values of the site. Archaeological sites are also subjected to management plans, as not to become the focus for the struggle between the potentially conflicting aspirations of conservation and tourism [ ]. The aim of this session is to discuss the status of archaeological site management plans and conservation practices in archaeological sites. 2005. Operational Guidelines for the Implementation of the World Heritage Convention, UNESCO World Heritage Centre, Paris, <http://whc.unesco.org/archive/opguide05-en.pdf> (accessed 03/18/2013). MILLAR, S., 1989. "Heritage Management for Heritage Tourism", *Tourism Management*, Volume 10, Issue 1, March 1989, pp. 9-14.

### **ORAL PRESENTATIONS**

#### **Managing Alalakh: Negotiating Cultural Heritage Practices at an Archaeological Site in Hatay**

**Emily C. Arauz** (Koç University, Istanbul)

Archaeological site management practices necessitate a holistic perspective incorporating the historical significance, contemporary context, scientific studies, stakeholders, potential, threats, benefits, strengths and weaknesses of a site. Often the hardest challenge in such a project is seeking a balance between the goals of an ongoing excavation with the priorities of

cultural heritage management practices. In just the past decade management plans have become a required document by the Turkish Ministry, yet they have typically been implemented at sites applying for World Heritage Status or at sites which are already listed. From 2010-2012, I developed a preliminary site management plan for Alalakh that was meant to serve as the first step in preserving the site and making it accessible to public audiences. Tell Atchana/Alalakh is an important archaeological site with an extensive ancient past dating to the Bronze Age and Iron Age and is located in Hatay, along the border with Syria. Currently undergoing excavations by Dr. Aslihan Yener, this site was originally excavated by the British archaeologist Sir Leonard Woolley in the early twentieth century. Alalakh's location in a contested region of Turkey, along with its contemporary, modern and ancient layers contribute to creating a multifaceted site. In this paper I will present the steps taken at the site towards the preparation of the preliminary site management plan including conservation methods and best practices in the region, the first phase of an archaeological park, the implementation of community engagement programs, and the installation of information panels and visitor paths. While the site is currently under threat due to neighboring conflicts, Alalakh is an excellent case-study on which to analyze a site not destined for World Heritage status yet urgently in need of comprehensive management practices that will provide a sustainable framework in which to continue the scientific studies at the site as well as to negotiate the contested contemporary context in which the site is currently situated.

### **Managing an Urban Archaeological Site: The Istanbul Land Walls World Heritage Site**

**Figen Kivilcim Çorakbaşı** (Anadolu University Department of Architecture, Eskişehir)

UNESCO inscribed the Istanbul Land Walls and its surroundings as a World Heritage Site (WHS) as one of the four Historic Areas of Istanbul in 1985. In the statement of the Outstanding Universal Value (OUV), the site was described as “the area along both sides of the Theodosian land walls (447 AD) including remains of the former Blachernae Palace” (UNESCO World Heritage List, “Historic Areas of Istanbul”, accessed October 1, 2013. <http://whc.unesco.org/en/list/356>). In October 2011, the Historic Peninsula Site Management Plan (SMP), which includes the guidelines regarding the management of all of the four Historic Areas of Istanbul WHSs, was adopted by Istanbul Metropolitan Municipality. However, until now, the responsible authorities have not implemented or complied with the Historic Peninsula SMP and its conservation measures for the Land Walls WHS. Therefore, the existence of a SMP has not proven to be effective for the conservation of the Land Walls WHS. As stated by Herb Stovel (Stovel, Herb, 2004, “Approaches to Managing Urban Transformation for Historic Cities” in: *The Conservation of Urban Heritage: Macao Vision*, Proceedings of the Conference held at the Macao Cultural Centre, Macao S.A.R. 10-12 Sept. 2002, 103-120, Macau: Instituto Cultural do Governo da Região Administrativa Especial de Macau, 2004), 106.), there is a “need to look beyond the mere presence of formal management instruments or controls as indicators of management effectiveness”. In this paper, the current conservation issues in the Land Walls WHS are presented by utilizing the framework of ‘ICOMOS Guidance on Heritage Impact Assessments for Cultural World Heritage Properties’. Moreover, how the SMP can be transformed into an effective management system is discussed.

### **Filling the Gap of Efforts: Memphis and Its Necropolis World Heritage Site**

**Tomomi Fushiya** (Independent scholar/ practitioner, Cairo)

The pyramids of Egypt are one of the best-known monuments in the world. Three great pyramids of Giza and other majority of the pyramids in Egypt were inscribed as the Memphis and its Necropolis – the Pyramid Fields from Giza to Dahshur on the World Heritage List in 1979. Reflected by its fame and the sheer number of visitors, numbers of efforts for managing and conserving the monuments and archaeological remains within the WH boundary has been planned and implemented, particularly in the last decade by the Egyptian government and international cooperation. It is continuously facing with various critical threats, however. In fact, the pressure of the threats is increasing in recent years despite the growing management and conservation projects that have been conducted. UNESCO began a project to provide a support to improve the situation. It started off from the study that looks into the gap of the documentations of the past and on-going projects and plans which were planned and implemented in the WH site. In this presentation, the ways in which the management of this complex site can be improved will be discussed along with the outcomes of the study.

### **The Materialization of Site Management Plans**

**Håkan Karlsson** (University of Gothenburg, Department of Historical Studies, Gothenburg), **Anders Gustafsson** (University of Gothenburg, Department of Historical Studies, Gothenburg)

A comparative discussion of staging and public communication at 8 World Heritage classified rock art sites. The Enamcharter has vitalized the discussions of cultural heritage management concerning stakeholder participation and a more active public involvement, as well as concerning the issue of the authenticity at heritage sites. However, this paper stresses that, in general, it has been hard for these discussions to make an impact on the traditional view of authenticity and in the Site Management Plans. The paper presents a comparative discussion of the staging and public communication at 8 World Heritage classified rock art sites from different parts of the world. The discussion focus primarily on how the attitude



towards authenticity and the Site Management Plans are materialized in the form of general presentations at information boards and physical staging of the sites. It is stressed that there exists variations in the view of authenticity held at the sites but that the traditional view in most cases seems to dominate the Site Management Plans as well as the materialization and staging of the sites.

### **Can Graffiti Help Managers to Understand how People Use Heritage Spaces?**

**Alex Hale** (Royal Commission on the Ancient and Historical Monuments of Scotland, Survey and Recording, Edinburgh)

Graffiti is heritage; it appears, is constructed, recognised and disappears. By incorporating the possibilities of graffiti into heritage management plans and by recording the styles and locations of graffiti, from tags to throw ups to complete pieces, along with their socio-cultural contexts and cultural references, we can begin to explore how people that we rarely engage with can become positive drivers for future heritage engagements. My paper discusses the contexts of historic graffiti in historic environment locations along different parts of a major river system. The case studies include Allt Cluth, the early 8th-century historic capital of Strathclyde, an historic 19th-century bridge and a 1970s deserted village. The paper outlines how different socio-economic groups engaged and engage with the river, appropriate its space, define their space, created neutral areas and crossed invisible boundaries, through the archaeology of graffiti. This enables managers to consider the importance of subversive additions within heritage guidance and policy decisions.

### **Not Tourists are to Blame....**

**Dominique Vanneste** (University of Leuven-KU Leuven, Leuven)

Many regional and local developers have mixed feelings about heritage tourism. On the one hand they are aware that heritage tourism has many advantages, not to mention income and jobs for the region, town or village but also resources that can be spend, among others on preservation or restoration projects. On the other hand tourism is often associated with destructive masses that physically destroy or mentally strip from authenticity. Therefore scientists are often quite suspicious about the development of tourism on archaeological and other historical or cultural sites as, indeed, many examples exist where overcrowding by tourists caused/causes irreversible damage and/or leave the locals with a sense of loss of ownership and annoyance. Unfortunately, in many cases the tourist is not to blame but the lack of visitors and site management. Often, tourism development is not embedded in a more general planning while only promoted in terms of advantages and not in terms of opportunities and threats to be foreseen and discussed with the (local) stakeholders. On the other hand, the cultural sector is often not interested in the tourist as well as in the tourism industry as a partner to promote and preserve tangible and intangible heritage. Therefore, site management has a pivotal role to play between the cultural and educational vocation of heritage on the one hand and a sustainable commodification that integrates this heritage in an experience economy as well as in a trajectory of preventive conservation on the other hand. Progress has been made in that respect since UNESCO itself changed the preconditions for the listing of sites as World Heritage but the cooperation between culture, tourism and development in terms of management has still a long way to go.

### **(A Lack of) Site Management Planning as the Root of All Evil? A Croatian Experience**

**Sanjin Mihelić** (Archaeological Museum in Zagreb, Zagreb), **Jacqueline Balen** (Archaeological Museum in Zagreb, Zagreb)

The paper discusses the present status of management planning for archaeological sites in Croatia as regards legal provisions on the one hand, as well as current practices on the other. While the all too often conflicting perspectives of different stakeholders continue to take their toll on the preservation of archaeological sites, let alone their sustainability as a resource for education or tourism, there are also hints at a light at the end of the tunnel, forged through a decade of trials and errors, as well as tribulations, as the survey of planning policies and implementations on the national level tentatively suggests. The argument focuses on three discrete cases in geographical and temporal terms—a major prehistoric site in the far east of the country, a Roman city on the Adriatic coast, and a mediaeval castle from central Croatia—with a view to put forward a guide to best practice as a tool for fine-tuning broad-spectrum regulations, to suit the needs of archaeological site management planning in Croatia.

### **Sites without Borders. Can Boundaries Drawn on Maps Protect Archaeological Sites in Turkey?**

**Ebru Torun** (University of Leuven-KU Leuven, Sagalassos Archaeological Research Project, Leuven), **Jeroen Poblome** (University of Leuven-KU Leuven, Sagalassos Archaeological Research Project, Leuven)

Archaeological sites in Turkey acquire protection within defined boundaries approved by Regional Conservation Councils. Formal identification of a site and its physical borders often result from a field research conducted by the Ministry of Culture and Tourism, seldom done in collaboration with scholars. Definition of the borders of the site is based on the visible or estimated extent of physical archaeological evidence spread in the area. Similarly, 'defining borders' is the prerequisite of the legislation concerning site management planning as well as the formal designation of an area as "Cultural and Touristic



Protection and Development Zone". This paper discusses the effectiveness of the protection provided through this process, based on a case study concerning the archaeological site of Sagalassos located in SW Turkey. The legal protection boundaries of Sagalassos had to be enlarged recently in order to be able to protect the summit of the mountain range it belongs to, from being quarried away for limestone. The paper questions the concept of defining a protection zone within boundaries, beyond which sustainable development planning is lacking, and calls for scientific and legislative approach that tackles large-scale cultural and natural landscapes for preservation and sustainable development rather than sites trapped within boundaries.

### **Byzantine Planning: Site Management in Istanbul**

**Daniel Shoup** (University of Bologna, Bologna), **Luca Zan** (University of Bologna, Bologna)

A new site management plan for Istanbul's Historic Peninsula was approved in late 2011. In this paper, we examine its institutional setting, preparation process, and contents from organizational and administrative perspectives. The result of a participatory process, the plan is professional, logically consistent, and effectively identifies challenges facing cultural heritage. The heart of the plan is a complex architecture of Objectives, Strategies and Actions that are integrated into 49 Project Packages. Surprisingly, however, the plan specifies neither concrete activities nor financial resources. Moreover, cultural heritage is consistently downplayed: rather than substantive interventions at monuments or museums, attention is focused on managerial and urban planning buzzwords (coordination, capacity-building, participation, awareness-raising, marketing). This arose from the preparation process, which was participatory but nonetheless dominated by urban planners and government agencies. The case suggests the potential risks of uncritical application of managerial and urban planning tools to cultural heritage.

### **Heritage Conservation at Foreign-Run Archaeological Excavations In Turkey**

**B. Nilgün Öz** (Middle East Technical University, Ankara)

Archaeological research carried out by foreign teams (i.e. projects led by non-Turkish institutions) is an integral part of archaeology and conservation in Turkey. Understanding their role in the conservation of archaeological sites in Turkey and determining their impacts on and contributions to heritage conservation in Turkey are crucial for the development of enhanced strategies. This paper aims to explore heritage conservation approaches of foreign archaeological teams working in Turkey by identifying aspects such as their architectural and site-scale conservation interventions, the problems they encounter, and public outreach activities. Focusing on the Aegean and Mediterranean regions of Turkey, the paper examines conservation and management planning practices at foreign-run excavations and correlates the findings with the wider picture of recent changes in cultural policies in Turkey. The study draws on desk-based literature research, on-site observations, and discussions with directors of relevant archaeological excavations. The main desk-based resource is the proceedings of the annual "Kazı Sonuçları Toplantısı" (Excavation Results Meeting). Site observations focus on aspects such as interpretation, presentation and public access, while the discussions strive to determine other site-specific conditions, current conservation issues, and long-term plans for the future of the sites.

## **POSTER**

### **How to Raise the Awareness of Political Authorities**

**Çiğdem Özkan Aygün** (Istanbul Technical University-ITU, Department of Fine Arts, Istanbul)

The poster will be about the two archaeological surveys which have been conducted by the author since 2005. The underwater archaeological survey under Hazar Lake Elazığ in Turkey was the first and only research related with the sunken medieval settlement at that region. Our mission was recording of this submerged medieval settlement which is not mentioned or photographed anywhere in the literature. We have tried to realize our mission as sufficient as possible under the inconvenient political conditions of the area. The second archaeological survey was conducted at the First Hill of Istanbul including the area of Hagia Sophia, Topkapi Palace and Hippodrome. The aim of the research has been to find out the historical water supply system at that area including the research of the structures like cisterns, supply channels, water towers, water chests etc. Both of the researches had faced with the problems of permissions which should be delivered by the Turkish Ministry of Culture. Through our paper we will seek for the solutions to raise the awareness of the authorities in charge in order to make them take action instead.



### **T02S028 - MAJOR INFRASTRUCTURE PROJECTS - ROUTINE BUSINESS OR OPEN MANAGEMENT ISSUES? (Round Table Session)**

**Organizers:** **Friedrich Lüth** (EAA, Deutsches Archäologisches Institut, Berlin), **Adrian Olivier** (Institute of Archaeology University of London, London), **Willem J.H. Willems** (Leiden University, Leiden), **Douglas Comer** (ICAHM) Integrating planning and heritage management on the basis of the EUROPEAN CONVENTION ON THE PROTECTION OF THE ARCHAEOLOGICAL HERITAGE (revised) has led to a greater implementation and integration of heritage issues into

the pre-investment phase of major infrastructure projects. Heritage issues are being incorporated into evaluation systems and issues raised during the different stages of planning and implementation of projects has brought significant benefits: in particular archaeological issues are taken care of during the pre-investment phase of work and this has resulted into greater security for construction companies. This principle is widespread throughout Europe but it seems that we have not yet reached a common standard in practice. The round table wants to explore and discuss which steps in the process of planning and implementation should be followed and what the expected outcome of such procedures are. Keynote speakers from different parts of Europe and overseas will address some of these issues, before all participants around the table will discuss possible actions. It is expected to lead to recommendations that shall be passed on to the EAA-ABM for acknowledgement.

## ORAL PRESENTATIONS

### **Archaeology and Large-Scale Infrastructure in England: Recent Approaches**

**Roger M. Thomas** (English Heritage, London)

Major infrastructure projects can pose considerable archaeological challenges, but they also offer great opportunities, especially for 'landscape-scale' archaeological investigation. This paper will briefly outline the approach to archaeology and infrastructure projects in England. It will then look at major three projects of recent years, considering especially the approaches adopted in each: the Channel Tunnel Rail Link (now known as High Speed 1) between the Channel Tunnel and London; Terminal 5 at Heathrow Airport; and the planned High Speed 2 (HS2) railway, which is intended to link London, Birmingham and the north of England. HS2 will result in the largest single archaeological programme ever undertaken in England, and the paper will consider in particular how lessons and experiences from earlier work might be used to help shape this programme.

### **Infrastructural Projects in The Netherlands: Archaeological Risk and Investment 25 years on**

**Karen Waugh** (Vestigia BV, Archeologie & Cultuurhistorie, Amersfoort), **Wilfried Hessing** (Vestigia BV, Archeologie & Cultuurhistorie, Amersfoort), **Jeroen Flamman** (Vestigia BV, Archeologie & Cultuurhistorie, Amersfoort)

The last 25 years has seen significant government investment in infrastructural projects in the Netherlands. These projects have had a profound effect on archaeological practice and the archaeological profession as a whole. The last couple of years has seen a shift in emphasis from road and rail construction to flood protection schemes and river and coastal management programmes which in turn are making new demands on the professions ability to manage archaeological and cultural historical remains. This short paper will summarize the experiences and results within policy making, process management and the necessary cooperation between commissioning bodies, clients and contractors and will aim to present a relevant model that can be of practical use within other European countries.

### **Future to the Past: The Motorways' Construction and the Protection of Archaeological Heritage in Romania**

**Corina Bors** (National History Museum of Romania-MNIR, Bucharest), **Paul Damian** (National History Museum of Romania-MNIR, Bucharest)

About 15 years ago a new reality emerged in Romania: the large-scale rescue/preventive archaeological excavations occasioned by the construction of the motorway networks developed along the Pan-European corridors. The National History Museum of Romania was involved since the beginning in coordinating the archaeological projects set in these circumstances. The paper will provide an overview on the most important archaeological projects undertaken in this framework, as well as pointing out the changes in the legislation and current practice but also the necessary improvements still required for implementing a better archaeological management strategy for protecting the heritage.

### **Bridging the GAPP: The Gas and Preservation Partnership Nation-Wide Heritage Resources Inventory Initiative**

**Donn Grenda** (Statistical Research Inc., Haymarket), **Michael Heilen** (Statistical Research Inc., Haymarket)

In the United States, heritage resource records are spread across hundreds of local, state and federal repositories. Some of these are digital and web accessible but many are paper-based. The absence of a nation-wide digital inventory impedes regional research efforts and planning for large projects. Many energy projects that can impact important archaeological sites are conducted outside of existing regulation across large planning areas and are fast-paced, requiring rapid access to information on archaeological sensitivity and site significance. GAPP is a not-for-profit organization whose mission is to work collaboratively and pragmatically with preservationists and the energy industry to identify and manage heritage resources while encouraging efficient development of energy reserves. In this presentation, we discuss an innovative, collaborative effort by GAPP to develop a centralized, national heritage resource information system. The database will provide geospatial and attribute data on archaeological sensitivity and significance to support planning decisions and project implementation. Although technically feasible, major challenges that need to be confronted are 1) the broad scale and

complexity of the effort; 2) the protection of sensitive information; 3) funding; and especially, 4) the politics of heritage data management and dissemination.

## POSTER

### **Between the Law and Its Implementation: Endangered Archaeological Monuments at the Corridor V/c Highway through Bosnia and Herzegovina**

**Melisa Foric** (Academy of Sciences and Arts of Bosnia and Herzegovina - Center for Balkan Studies, Sarajevo),  
**Aleksandar Jasarevic** (Museum of Doboj, Doboj)

After the Helsinki conference in 1997 where Pan-European transport corridors have been defined, preparation of the studies on the Corridor V/c highway through Bosnia and Herzegovina were initiated. Preparation and implementation of such project carries a number of mandatory activities, among which protection of heritage monuments is an important part. Especially numerous are archaeological sites which are mostly underground and hardly noticeable at first glance. According to the law and the relevant European conventions investors are obliged to promptly provide the necessary financial and technical conditions for research and protection of endangered monuments before the construction. Unfortunately, archaeological institutions and professionals in Bosnia and Herzegovina were completely ignored during the process of planning and implementing this project. Center for Balkan Studies of the Academy of Sciences and Arts of Bosnia and Herzegovina has independently made the beforehand identification of the 228 endangered archaeological monuments in the construction zone of the highway. The study has been offered to the responsible ministries and bodies in Bosnia and Herzegovina as a base for the proper planning and implementation of the heritage protection, but no serious work has been performed until now even though that around 60 km of highway have been already built and some of the known or unknown sites and monuments were lost forever.



### **T02S029 - MEDIEVAL OPEN FORUM: NEW AGENDAS AND DIRECTIONS IN MEDIEVAL ARCHAEOLOGY (Round Table Session)**

**Organizer: Dries Tys** (Vrije Universiteit Brussel, Brussels)

In this FORUM, people interested in medieval archaeology and historical archaeology wherever in Europe will meet and discuss the state of the art of their discipline. The objective is to give a public airing to research priorities, how to release research energy in the commercial sector, talk about teaching, advertise the upcoming sessions, design a publication (or web development) and suggest some sessions for next year.



### **T02S030 - OPPORTUNITIES WITHIN THE ARIADNE NETWORK (Round Table Session)**

**Organizer: Holly Wright** (University of York, York)

Advanced Research Infrastructure for Archaeological Dataset Networking (ARIADNE) is a four-year EU FP7 Infrastructures funded project, made up of 24 partners across 16 European countries. ARIADNE has the ambitious goal of “bringing together and integrating existing archaeological research data infrastructures, so researchers can use the various distributed datasets and new and powerful technologies as an integral component of the archaeological research methodology”. A fundamental component in meeting this goal is the provision of transnational access to a wide variety of European archaeologists. To realise this, online access opportunities are being developed, but funding will also be provided for on-site training with our technical partners. Please join us for presentations and discussion about the ARIADNE project, including details about our upcoming training programmes. This will be a rare opportunity to work directly with the staff designing the infrastructure, including PIN at the University of Florence at Prato, Consiglio Nazionale delle Ricerche (CNR) in Pisa, Athena RC – Digital Curation Unit (DCU) in Maroussi, and Athena RC – Cultural and Technology Institute (CETI) in Xanthi. Technical staff will be on hand to present information about the training (including logistical details and application procedures), to discuss the goals of the project and answer questions.

## **THEME 3**

### **“Ancient Technologies in Social Context”**



## THEME 3: ANCIENT TECHNOLOGIES IN SOCIAL CONTEXT

Even though the story of technology can be outlined as the interplay between material, process and product, the motive behind the emergence and development of technologies is a much more complex phenomenon that should be holistically contextualized with need, social demand, availability and characteristic features of raw materials and attained ability to work with them. Furthermore, issues such as craft specialization, social stratification, and discrepancy between consuming for basic needs, trade, prestige or for luxury should also be considered together with the impact of environmental conditions.

The morphology and/or typology of tools can show an immense variety even if the intended product would serve for more or less the same purpose. Moreover, interaction with other regions, either as a transfer of know-how or as finished products would be as seminal as local developments. In this respect, due to difficulties in reaching a consensus in reading the archaeological evidence, the impact of core regions on new technologies, trends in peripheral or marginal zones should also be taken into account. Once again, the dynamics of social context exerts a great impact on processing, including craftsmen and artists, workshops, workers and employers.

Finally, the product manifests itself, among other aspects, through the applied technology. In these terms, a prehistoric needle made of bone, an early Greek fort constructed of stone and mud brick or a medieval water supply system all reflect the level of creativity, economic achievements and social organization of their time.

During recent years the means to understand ancient technologies has greatly improved, not only through the contribution of analytic methods of the natural sciences, but also by increased interest in experimental archaeology, use-wear analysis, which provide a much broader spectrum in looking at the interface between technology and culture. All in all, this topic welcomes sessions on production, technodiversity, mobility and transfer of technologies that promoted the flux of cultural models, and solid integrity between technology and social setup.



### T03S001 - METAL IN HUMAN HISTORY

**Organizers:** **Ünsal Yalçın** (German Mining Museum/Ruhr University Bochum, Bochum), **Hadi Özbal** (Boğaziçi University, Istanbul), **Hayat Erkanal** (University of Ankara, Ankara)

Metals as raw material are important factors for the development of the human race. They are distributed unequally around the world thus some civilizations had to import them in case of not having access to precious materials in their territories. Possessing metals and being able to trade with them increased the influence of nations; indicating and symbolizing power, they lead to the first social disparities among early societies and influenced the development of many cultures. Metals were used in exchange in standardized forms. They were imported from far distances and rose to a status symbol among the elitist societies. On one hand its importance came from its physical properties; on the other hand it was recyclable and thus reusable. The study of metal finds requires a close cooperation with different scientific fields. There are questions concerning the art historical aspects of metal objects, but technologies, history of economy, sociology and conservation techniques also have to be considered. For this purpose the researcher harks back to the methods of science. Thus, in this session different aspects and questions concerning archaeology and archaeometallurgy will be discussed, such as the material composition, production, provenance and also trade. For this session special projects and find complexes will be selected.

### ORAL PRESENTATIONS

#### Inventing Metallurgy

**Miljana Radivojević** (UCL London, London)

A look through the microscope lens Academic debates on the invention of metallurgy is dominated by the pursuit of when and where of the earliest copper metal smelting event. The recent study of the 7000 years old copper smelting evidence from a Serbian Vinča culture settlement revived the possibility of multiple, rather than single origins of metallurgy in Eurasia; however, little has been done to address the invention of metallurgy beyond the discussion of its exact time and location. This paper will discuss how and why metallurgy was invented by looking into choices and skills involved in selection, experimentation and processing of distinctively coloured copper ores throughout c. 2000 years in the Balkans. The 'microstructure' of a metal invention process is explored through optical, compositional and isotopic analyses of copper minerals, ores, slags, technical ceramics and metal artefacts coming from eight different Balkan settlements, dated from the late 7th to the late 5th millennium BC. This research suggests a unique and independent technological trajectory of the emergence of metallurgy in the Balkans, which evolves from mono- to polymetallic within this period.

#### The Development of Copper Alloys in Late Chalcolithic Anatolia

**Loïc Boscher** (UCL London, London), **Ulf-Dietrich Schoop** (University of Edinburgh, Edinburgh)

The development of metallurgy is often perceived as occurring in parallel to the emergence of sedentary and state level societies in the Near East. While early metallurgical discoveries seem to have been made independently in several regions,



innovations in alloying techniques have tended to be attributed to the Early Bronze Age and the beginning of the use of tin bronzes, typically following an extended period of unintentional production of arsenical copper. Evidence for this originates from large, permanent mound sites dating to the Late Chalcolithic and EBA, such as İkiztepe, Değirmentepe, Norşuntepe, Arslantepe, or Tülin-tepe, where arsenical copper production has largely been attributed to the direct smelting of polymetallic ores. However, little attention has been paid to smaller production sites, which may have been responsible for a large proportion of the metal produced during this time period. It is with an eye towards this gap in our knowledge of an arguably major segment of Chalcolithic society that this paper will discuss the results of recent analysis of metallurgical finds from the mid-4th millennium site of Çamlıbel Tarlası in central Turkey. The implications of advanced smelting technology and intimate knowledge of copper alloys in marginal settlement sites will be highlighted.

### **The Alişar Höyük Metals: A New Typological and Compositional Study in the Context of EBA Central Anatolian Metallurgy**

**Stefano Spagni** (Sapienza - Università di Roma, Rome)

The site of Alişar Höyük, excavated for six seasons between 1927 and 1936, has returned important metal findings. After 80 years, a new study of these materials has become indispensable to provide new data about the technological and cultural dynamics of Early Bronze Age metallurgy in Central Anatolia. As the Alişar stratigraphy is far from being perfect, the new data may offer additional hints to help shape a clearer view of it. Moreover, a work moving along comparative lines, involving both typology and technology, reveals the presence of strong relationships between the site (and, on a more general sense, the whole Central Anatolia) and South-Eastern Anatolia, on the one hand, and between the site and Northern Anatolia on the other. The data obtained by qualitative analyses performed with a portable XRF will enrich the compositional database of Anatolian metals in order to better understand the issue of the provenance of raw materials and their exploitation.

### **Copper in Pre and Early Dynastic Egypt. Why Naqadans were Present in the Levant?**

**Joanna Dębowska-Ludwin** (Jagiellonian University, Krakow), **Marcin Czarnowicz** (Jagiellonian University, Krakow), **Agnieszka Ochał-Czarnowicz** (Jagiellonian University, Krakow), **Karolina Rosińska-Balik** (Jagiellonian University, Krakow)

During the Early Bronze Age I copper was playing a dominant role in the relations between Egypt and the Levant. Beside vine and olive oil it was most important commodities exchanged between these two areas. To maintain the trades rout Naqadans set in southern Levant a whole net of the trading posts. It was believed that only a black copper was reaching the Egypt what was underlined by the finds from Ma'adi and Tell Hurajat al-Ghuzlan. At the first place a copper ingots were found while on the second on a molds to cast such ingots were located. Recent works in Egypt and Levant revealed a new interesting fact about the trade of the copper in Pre and Early Dynastic Egypt and EBA Levant. Finds from Tell el-Farkha and Ashqelon shows that not only black copper but also ready to use tools were imported to Egypt. For a better understanding the nature of the relations and the meaning of copper a group of archaeologists begun to excavate in Tel Erani (Israel, TRONE Project). During our presentation, basing on archaeological and archeometallurgical evidences, we would like to show how copper was important in early relations between Egypt with the Near East.

### **Archaeometallurgical Examination of Kültepe Metal Artefacts**

**Levent Ercanlı** (Middle East Technical University, Ankara), **Ali Kalkanlı** (Middle East Technical University, Ankara), **Şahinde Demirci** (Middle East Technical University, Ankara)

Kültepe where it was the center of the trade organization in Anatolia realized between Assur and Anatolia during 1945-1730 B.C. called Assyrian Trade colonies period was one of the most important metal working center of Anatolia in that period. In this study, it is aimed to make a contribution to understand the metal working technology in Kültepe. For this purpose, the metal artifact uncovered from Kültepe ancient site belonging to colonies period which are exhibited in the Anatolian civilization museum were examined with portable XRF to obtain the quantity of elements that constituted the artefacts without distracting. In addition, the uncovered metal artifact parts which are not suitable for exhibition were examined with energy dispersive X-ray unit of scanning Electron microscope for elemental analysis and by X-ray diffraction for the analysis of minerals. The microstructures of artifacts were examined by SEM and optical microscope for revealing the operations on metal applied by ancient metal smith. In addition lead isotope analysis of some samples from the separated metal artifacts for studying was performed. It was concluded that Kültepe ancient metal smiths had the knowledge to smelt the copper and to pour molten metal into a mold to produce an object.

### **The Beginnings of Social Inequality: Not a Consumer's but a Producer's Perspective on Early Metal Age Mining in Eurasia**

**Thomas Stöllner** (Deutsches Bergbau-Museum Bochum, Bochum)

The rise of inequality in early societies is a matter of long lasting debates within research: often archaeologists did explicatively focus on far-distant object networks and the accumulation of wealth in the archaeological record. Therein the

consumption of metals plays a prominent role: but seldom are the interwoven roles of producers and the complexity of work-steps considered; simplified models even strengthen the idea of some kind of dependency and dichotomy between “ruling elites” and a producing “under”. But mining as a social practice is more complicated and might have inherited a social complexity right from the very beginning: expeditions to procure special or prestigious materials reveal examples of a complex interrelation between social role and personal expert knowledge. But when and how the activity of mining became a permanent practice sphere; what kind of societal needs and desires and their interaction with mining practices led to organizational supra-levels that also required itself permanency in societal and economic structure? The contribution will pursue the question of the technical complexity, its economic scale and the ideological charging of materials such as gold as possible parameters to explain the evolvement of supra-structures and societal control. Multidisciplinary data compiled during mining archaeological investigation. The case example of 4th millennium gold mining in the Caucasus will be discussed in detail. Through a combination of empirical data, experimental archaeology and econometrics the technical, societal and economic complexity of mining will be approached. The difference of seasonal and permanent mining practice will be used as an explanatory model. The mining practice itself implies information about the necessity of involvement of labor force and specialist skills. Integration of such data will be used to define tipping points when mining as a societal practice possibly results in differences in social organization. Gold-mining such as in Sakdrissi especially raises the question if a hard labor consuming production of a highly desired material unfolded its own societal dynamics.

### **Golden Artefacts from the Royal Tombs of Ur**

**Andreas Hauptmann** (Deutsches Bergbau-Museum Bochum, Bochum), **Moritz Jansen** (Deutsches Bergbau-Museum Bochum, Bochum), **Sabine Klein** (Goethe-University, Frankfurt), **Richard Zettler** (Penn Museum, Philadelphia)

During the Early Bronze Age I copper was playing a dominant role in the relations between Egypt and the Levant. Beside vine and olive oil it was most important commodities exchanged between these two areas. To maintain the trade route Naqadans set in southern Levant a whole net of the trading posts. It was believed that only a black copper was reaching the Egypt what was underlined by the finds from Ma’adi and Tell Hurajat al-Ghuzlan. At the first place a copper ingots were found while on the second on a molds to cast such ingots were located. Recent works in Egypt and Levant revealed a new interesting facts about the trade of the copper in Pre and Early Dynastic Egypt and EBA Levant. Finds from Tell el-Farkha and Ashqelon shows that not only black copper but also ready to use tools were imported to Egypt. To understand better the nature of the relations and the meaning of the copper group of archaeologists begun to excavate Tel Erani (Israel, TRONE Project). During our presentation, basing on archaeological and archeometalurgical evidences, we would like to show how copper was important in early relations between Egypt with the Near East.

### **The Development of Bronze Age Precious Metal Vessels in Europe-Form; Function and Technology**

**Barbara Armbruster** (Centre National de la Recherche Scientifique, Toulouse)

During the Bronze Age the production and use of precious metal vessels develops in various parts the Near East and in Europe. This paper deals with the diversity and evolution of form, decoration and manufacturing technique in the creation of luxury items in gold and silver, in particular of containers. Manufacturing processes differ in time and space, as hollow metal bodies were obtained by casting, by hammering and sinking, or by assembling. These technological aspects will be discussed in detail considering tools and workshops. The ritual function and symbolic meaning of the ornamentation and shape realized by fine metal workers will also be presented in their different appearance and evolution. This study sheds light on complex fine metal technologies and prestige objects as active components of the Bronze Age.

### **Wooden Propping and Pumping Systems in a 2nd c. AD Gold Mine in Apuseni Mountains (Rosia Montana, Romania)**

**Beatrice Cauuet** (TRACES - CNRS Laboratory, Toulouse 2 University, Toulouse)

New researches were recently performed in the Roman gold mine Catalina Monulesti of Rosia Montana, Romania. The Roman network intercepted by the long modern drainage adit Catalina Monulesti is known since the 18th c. when the mining restarted in Cos-Lety massif. After a first exploration in 2003, the systematic diggings of the ancient and modern mining works started in autumn 2011 and continued until early 2013. The Roman mining network has a N/NW - S/SE strike and cover more than 2100m<sup>2</sup>, being developed at least on 5 levels (18 m vertical development). We identified so far exploration adits, inclined planes, shafts and large vertical stopes, as well as wooden propped galleries. Various Roman wooden mining equipment was found as ladders, props, boards, planks, beams. For the lightning, we discovered some lamps from the 2nd c. AD and countless torches and slivers with burned edges. In the SE part of the mine a high chamber was discovered with a double water wheels system for drainage including wooden channels. The two wheels were installed one upon the other in the same chamber. All the dendrochronological analyses made on the different wooden antique equipment found dated from mid 2nd c. AD.

### The Way of Delivery of Silver in Dnieper Region of the 6th-7th c.

**Irina Saprykina** (The Institute of Archaeology of Russian Academy of Sciences, Moscow), **A. Chugaev** (Russian Academy of Sciences, Moscow), **L. Pelgunova** (Russian Academy of Sciences, Moscow), **Vlasta Rodinkova** (Russian Academy of Sciences, Moscow), **D. Stolyarova** (Russian Academy of Sciences, Moscow)

In 6th-8th cc. on the compact territory of Middle Dnieper and Dnieper left-bank region the phenomenon of the emergence of a large number of hoards containing silver jewelry and standing out against poor settlement culture of the early Slavic population happened. The unexpected appearance of these hoards together with the same unexpected termination in hiding them is noticed. The hoards have been divided into two chronological groups: the hoards of the 1st group – the end of the 6th – the middle/third quarter of the 7th cc.; the hoards of the 2nd group – from the third quarter of the 7th to the first half/middle of the 8th cc. The hoards contain works dated back to West European and Byzantine culture. Moreover, the hoards of the 1st group contain less percent of silver works in comparison with the hoards of the 2nd group, which appeared in the first half/middle of the 8th c. According to some indirect indicators it is suggested that silver was delivered to the territory of Dnieper from Balkan mines. However, it is known that the mines of Asia Minor and North Africa were being intensively developed at the same time. The silver from the mines was delivered as to the central manufactories as the remote Byzantine provinces and the periphery. In 2009 in Kursk oblast on the border with the Ukraine in the cluster of three hoards of the end of the 6th – the middle/third quarter of the 7th cc. the fourth hoard was found including more than 500 items made of metal (the Sudzha-Zamoste hoard). The hoard contains jewelry pieces (items which had been used or repaired). There are no full private collections of jewelry sets. It contains items of different chronological periods, from the 2nd-3rd cc. to the 7th c. The complex also contains about 50 items made of silver alloys dated from the late Roman period to the early Middle Ages. There is a unique find for the territory in its contents which, probably, is the source of silver for jewelers of Dnieper region: three fragments of the Byzantine silver dish cut in antiquity with the Constans II (641-668) or Constantine IV (668-685) stamp. In this context the study of the chemical composition of the metal and receiving their isotope lead “marks” has special significance for identifying the source of these works. The study of the chemical composition of the metal, the mapping of the elements dispersion on the surface and phase analysis have been done with XFA spectrometer M4 Tornado (Bruker). To identify possible area of silver works development the analysis has been done with the help of the high-precision method of multicollector mass-spectrometry with inductively coupled plasma (MC-ICP-MS). Mass-spectrometric studies of isotope proportion of lead have been done with mass-spectrometer NEPTUNE (ThermoFinnigan, Germany). The results of the analytical examinations of the silver are given in our report.

### Metal Technologies as a Driving Force in Anatolian Early Bronze Age: A Critical Approach on the Impact of Metals Trade and Metalworking Activities in the Development of Complex Societies

**Levent Keskin** (Ankara University Department of Archaeology, Ankara)

The Early Bronze Age marks one of the most important turning points in the history of Anatolia. Radical changes observed in settlement organizations, and the emergence of complex and hierarchized societies have been often interpreted as a result of increasing trade activities on raw materials and luxurious commodities. Metals, both as raw materials and final products have been in the center of these activities, as well as the interest on the control of the trade routes and the circulation of goods. The rich potential of Anatolia in terms of metal ores and mineral resources has been well reflected in the archaeological record during this period. Several metalworking schools in different parts of the country presented a wide variety of metal inventory, both with local features and external influences as a result of intensive interactions with neighboring zones. The diversity of alloys, techniques and forms reflect the well-developed skills of Anatolian metalworkers of this particular period. The exploitation of ores and different stages of metalworking activities in and out of the city centers have been a trigger force for above-mentioned developments in a societal level, however the impact on daily activities or in an individual level is more likely overrated. Thus, this paper aims to analyze the dynamics of these activities and tries to achieve a proper understanding of how and at what level they affected societies and individuals.

### Tradition and Innovation in Anatolian Metalworking: The Use of Double Moulds for Casting Shaft-Hole Axes during the Early Second Millennium BC

**Martina Massimino** (Università degli studi di Catania, Catania)

In the small regional site of Hirbemerdon Tepe, located along the western bank of the Upper Tigris, in southeastern Turkey, the discovery of a steatite bivalve mould for casting shaft-hole axes in a MBA context of the architectural complex (i.e. 2000-1600 BC) suggests not only that a specialized craft production of metal objects took place at the site, but also the existence of cultural and, possibly, commercial exchanges with central and eastern Anatolia as well as northern Mesopotamia. In fact, through a comparison with other examples of similar moulds found at other Anatolian sites, it seems clear that the use of this kind of moulds has to be considered as typical trait of an Anatolian metallurgical tradition. On the other hand, the presence of shaft-hole axes in both Anatolian and northern Mesopotamia contexts suggests that the finished objects might have been part of the long-distance exchange between these two areas that characterized Anatolian and Mesopotamian societies during the early second millennium BC.

## **Moulds for Casting Disc-Shaped Ingots from 3rd-2nd millennium BC Upper Mesopotamia and Anatolia: An Updated View**

**Monica Tonussi** (Ca' Foscari University of Venice, Venice), **Lucio Milano** (Ca' Foscari University of Venice, Venice)

Starting from the mid-3rd millennium BC onwards, several Near Eastern archaeological sites show an increasing presence of moulds for casting simple metal objects, mainly small bars and flat axes/adzes, which could be interpreted as a sort of 'ingots'. Besides the artefacts just mentioned some of the moulds bear small circular dies for casting disc-shaped 'ingots' which are sometimes marked with a central incision representing whether a cross or, more rarely, an asterisk. In general, the circular dies have a diameter varying normally between 3.5 and 7.5 cm, although very few smaller and larger specimens are also attested. Moulds with circular dies were recovered in a relatively restricted territory, from Upper Mesopotamia to central and Western Anatolia and in a limited span of time, between the mid-3rd millennium and the beginning of the 2nd millennium BC, and suggest some historical considerations about the circulation of metals and the exchange networks of the time. In this paper new archaeological evidence about moulds for casting disk-shaped ingots will be presented and the possibility of associating these ingots with metals and metrological systems in use will be discussed in the framework of the different regions and periods involved. Comments will be also devoted to the significance of the absence or presence of the 'cross' and 'asterisk' marks on these objects.

## **Ritualized Metallurgy: Copper Production in the Ghassulian of the Southern Levant**

**Milena Gosic** (Ben-Gurion University of the Negev, Negev), **Isaac Gilead** (Ben-Gurion University of the Negev, Negev)

During the later phase of the Ghassulian culture of the Chalcolithic period of the southern Levant (ca. 4,300/4,200-4,000) a sophisticated metalworking technology, featuring advanced lost-wax technique, was used. The current paper explores how the introduction of metallurgy influenced the structure of Ghassulian society, especially its ritual behavior. Ghassulian metalworkers not only developed the technology, but also played a special social role. This was most probably reflected in rituals resulting in what we call ritualized metallurgy. The actual copper objects, the transformational quality of smelting that relates metallurgy to alchemy and the wide range of ethno-historic examples of ritualization of metallurgy, support this contention. Ritualized metallurgy implies that smelting the ore and casting the objects was carried out as a magical ceremony. Acknowledging metalworking as a ritual practice changes our perspective, suggesting new ways of understanding how metallurgical technology might have been part of, or even initiated, the changes in the social structure of late Ghassulian communities. It is argued that metalworkers were masters of ceremony in the ritual life of their community. There were also other changes in ritual, such as the introduction of second burial in ossuaries that relate to the introduction of metallurgy.

## **The Role of Metallurgy in the Urartian Kingdom**

**Ali Çiftçi** (Liverpool University, Liverpool)

This study sets out to critically review the available evidence for metallurgical activities within the Urartian kingdom from a wide range of sources. I will discuss the Urartian and Assyrian textual evidence, location of ore deposits, and the archaeological evidence for metal workshops from Urartian period sites. The excavations of Urartian sites have uncovered diverse metal artefacts of iron, copper, gold, silver and bronze that reveal the high level of skill of Urartian metalworkers. However, despite the lack of written evidence about the sources of ore deposits, the methods of smelting, and forging, or the central government's role in the organization and manufacturing of these myriad artefacts, the archaeological evidence shows that metallurgical activities played a crucial role in the socio-economic development of Urartian society. To supplement this evidence, I will call upon discoveries from mines and metal workshops in various parts of the Urartian territory - especially in the Lake Van basin and the Ararat Plain, as well as other evidence relating to the construction of citadels, water facilities, the clearance of new land for agricultural activities and the remains of various metal artefacts of iron and bronze from the Urartian period.

## **Metallurgical Analysis of Bronze Figurines in Pre-Roman Central Italy**

**Francesca Fulminante** (Cambridge University, Cambridge), **Mukund Unavane** (McDonald Institute for Archaeological Research, Cambridge University, Cambridge)

Small schematic bronze figurines were popular at a time of rapid political change in central Italy during the 6th-5th century BC. In the Republican and later periods, however, new processes of Romanization took hold and bronze figurines become progressively less common, in favour of terracotta objects. The numerous finds have been extensively studied stylistically and although their typologies and chronologies are now well established, they have never been properly analysed to understand their composition in terms of metal content. Broadly similar figurines were widely distributed in various sized assemblages, suggesting a commonality to the cultural and religious practices concentrated on mountain tops visible from one another. Furthermore, hill top excavations (such as Monte Ansciano and Monte Acuto) provide more detailed contextual information. There is great potential in analyzing the metal content of these objects, to better understand both recycling practices and possible manufacturing and technological differences in metal production between different sites and regions in central Italy. Although stylistic and typological variation is well understood across this region, the link

to metallurgical analysis has been relatively little investigated. This paper presents the results of exploratory work on the metallurgical analysis of these figurines, carried out using X-ray fluorescence analysis.

### **Iron Metallurgy in Ionia**

**Hüseyin Cevizoğlu** (University of Ege, Izmir), **Ünsal Yalçın** (German Mining Museum/Ruhr University Bochum, Bochum)

The study of the metalworking activities and workshops through archaeometallurgical analysis, although very limited in the region, it revealed in the last years very useful for defining the main technological parameters and exchanges between the Iron Age cities in Ionia. In this region, up to now, few archaeological and archaeometallurgical studies have been carried out on the metal workshops focusing on contexts. The new data gathered from the excavations of the several iron-working installations from Ionia in Miletos, Klazomenai, Phocaea and Nif / Olympos-Karamattepe can provide fresh insights into metal working, especially iron working in Ionia during the Archaic Period. This work aims to evaluate the potential workshops associated with Ionia and to overview of the archaeometallurgical data published so far, in order to discriminate material composition. The archaeometallurgical studies already confirmed iron working performed in these installations. The microstructure of the bloom examined shows that it contained carbon; in other words, the metal was steel. Research carried out in Miletus, Klazomenai and Phocaea has determined that steel was used in antiquity.

### **Glaucus of Chios. The Invention and Glorification of Welding**

**Jean-Marie Pailler** (TRACES UMR 5608 CNRS University of Toulouse, Toulouse), **Marie-Pierre Coustures** (TRACES UMR 5608 CNRS University of Toulouse, Toulouse)

All over Antiquity, the name and art (Plato : *techne*) of Glaucus of Chios have symbolized the invention of welding iron artefacts. From Herodotus to Plato, from Plutarch to Pausanias and Athenaeus, Glaucus' masterpiece, offered, it is told, at Delphi by the Lydian king Alyattes, the father of Croesus (seventh or sixth century B.C.), had been celebrated for various reasons. Our first purpose is to try to elucidate that story, at once historical and legendary, by confronting the literary testimonies with the results of archaeological, experimental and archaeometrical researches. How was made the crater-stand? What about Chios and its possible influence on the realization of the masterpiece? How could such a metallic basis endure so long and so constantly raise the admiration of many and eminent commentators? Is it possible, and to what extent, to reconstruct the progress of welding techniques in the Greek and Western world? What kind of value added this operation, so complex in the eyes of the ancients, conferred on the welded objects? In examining these questions and some products involved (iron bars, wagon tyres...) the multidisciplinary point of view will prevail.

### **Sophisticated Iron Technology as a Marker of Specific Economic and Social Contexts**

**Carla Maria Amici** (University of Salento, Lecce)

In roman imperial times metallurgy reached a high degree of specialization and complexity. The use of iron has been extended even to building technique, reaching some very particular result showing complete understanding of metal properties and mastery of sophisticated technology; in a social and economic context characterized by large financial resources and high level creativity applied in architectural projects. A still unpublished device is found in the construction of several floors in the Villa of Giulia, Augustus' daughter, in Ventotene (Italy). In the thermal area the concrete floors of the bath tubs are supported by an iron grid held in place by vertical iron bar strongly fixed in the underfloor; allowing at the same time widespread hot air circulation and support for superimposed loads. Curvilinear metal grid supported by metal hooks were also used to obtain a tile-line vault, creating an interspace for the circulation of hot air in *calidaria*; a careful analysis of the remains of two vaulted system in Villa Adriana, Tivoli, Italy, allow a clear reconstruction of this device. The lattice pattern was probably originated from wood work; but the translation in iron work has required very specific requisites and a well definite cultural and technological context.

### **Technology and Organisation of the Production of Iron in Ireland, AD 1200 to 1600**

**Paul Rondalez** (University College Cork, Cork)

Late medieval Ireland was a complex world, with the balance of power shifting back and forth between the Anglo-Norman colonists, the old Gaelic elite and a new class of independent lords merging aspects of both. Recently finalized PhD research on the archaeology of ironworking during this period has demonstrated that these ethnicities are reflected in both the smelting and smithing technologies. Furnace types emerged which combined aspects of vertical (Gaelic-Irish) and lateral (imported technology) slag removal. Tuyeres, some of them exceptionally large, continued in use by the Gaelic population for forging activities, while smithing hearth walls were characteristic of the immigrated smiths. Analysis of the weight distribution within smithing hearth cake assemblages has allowed to propose spatial models of activity type. As such, in the Gaelic-Irish economy, based on cattle and without fixed market places, smelting and bloom smithing were carried out in the same place. In the Anglo-Norman model, on the other hand, dominated by arable agriculture and market towns, the



latter function as the settings for bloom smithing. Economies based on ploughing, but without market places, gave rise to the isolated rural forges, solely used for secondary smithing.

### **Iron from Kubad-Abad: Production Techniques of Iron Tools from a Medieval Anatolian Palace**

**Ümit Güder** (Çanakkale Onsekiz Mart University, Çanakkale), **Cemal Cem Taşan** (Max-Planck Institute für Eisen-Forschung, Düsseldorf), **Alptekin Yavaş** (Çanakkale Onsekiz Mart University, Çanakkale)

The development of metallurgy is often perceived as occurring in parallel to the emergence of sedentary and state level societies in the Near East. While early metallurgical discoveries seem to have been made independently in several regions, innovations in alloying techniques have tended to be attributed to the Early Bronze Age and the beginning of the use of tin bronzes, typically following an extended period of unintentional production of arsenical copper. Evidence for this originates from large, permanent mound sites dating to the Late Chalcolithic and EBA, such as İkiztepe, Değirmentepe, Norşuntepe, Arslantepe, or Tülintepe, where arsenical copper production has largely been attributed to the direct smelting of polymetallic ores. However, little attention has been paid to smaller production sites, which may have been responsible for a large proportion of the metal produced during this time period. It is with an eye towards this gap in our knowledge of an arguably major segment of Chalcolithic society that this paper will discuss the results of recent analysis of metallurgical finds from the mid-4th millennium site of Çamlıbel Tarlası in central Turkey. The implications of advanced smelting technology and intimate knowledge of copper alloys in marginal settlement sites will be highlighted.

### **Investigation of Iron Metallurgy in 16th century Ottoman Period by the Analyses of Some Structural Iron Nails Used in Their Buildings**

**Nurdan Yücel** (Middle East Technical University, Ankara), **Ali Kalkanlı** (Middle East Technical University, Ankara), **Emine Caner-Saltık** (Middle East Technical University, Ankara)

In Ottoman architecture, iron nails were widely used as structural elements in stone and brick masonry as well as in structural timber beams. Long term durability of those structures and their iron elements indicated the importance of iron metallurgy at that time. This study focused on the examination of some structural iron nails from 16th century brick masonry buildings in Istanbul and elsewhere. Firstly, dimensional measurements and Brinell hardness measurements of iron nails were done. Their microstructural characteristics were examined with a metallographic microscope and SEM-EDX. Corrosion layers and the main body were analyzed by XRD, SEM-EDX, Raman spectroscopy, spark emission spectrometry. All iron nails were wrought iron with low carbon content having some phosphorous, manganese and sulfur in their composition, their Brinell hardness indicating soft to medium hard steel. Views of etched sections under metallographic microscope and SEM-EDX confirmed their ferritic structure and elongated slags with corrosion cavities in the direction of hot rolling. Corrosion pits and galvanic cells rich in manganese sulfur as well as the ones rich in manganese, phosphorous and silicon were observed in their microstructure. The results were further discussed in terms of iron metallurgy of the period and corrosion characteristics of iron nails.

### **Menteshtepe: Metallurgical Evidences and Recent Archaeometallurgical Studies; the Beginnings of Metallurgy in Azerbaijan in Perspective; from the Neolithic to the Early Bronze Age (6th-3rd mill. BCE)**

**Antoine Courcier** (Research Laboratory for Archaeology and Materials Sciences at the Deutsches Bergbau-Museum, Bochum), **Andreas Hauptmann** (Research Laboratory for Archaeology and Materials Sciences at the Deutsches Bergbau-Museum, Bochum), **Michael Bode** (Research Laboratory for Archaeology and Materials Sciences at the Deutsches Bergbau-Museum, Bochum), **Sabine Klein** (Goethe-University, Frankfurt), **Bertille Lyonnet** (CNRS UMR 7192, Paris), **Farhad Guliyev** (Institute of Archaeology and Ethnology, Baku), **Emmanuel Baudouin** (CNRS, UMR 8167, Paris), **Laurence Bouquet** (INRAP, Paris), **Gaëlle Bruley-Chabot** (INRAP, Paris), **Alexia Decaix** (CNRS, UMR 7041, Nanterre), **Caroline Hamon** (CNRS, UMR 8210, Nanterre), **Bakhtiyar Jalilov** (Institute of Archaeology and Ethnology, Baku), **Laure Pecqueur** (INRAP, Paris), **Modwene Poulmarc'h** (CNRS, UMR 5133, Lyon), **Anaïck Samzun** (INRAP, Paris)

The settlement of Mentesh Tepe is located in western Azerbaijan at the foot of the Smaller Caucasus in the Kura River valley. It was first visited by I. Narimanov in the 1960's and it was re-discovered in 2007, near the village of Ashagi Ayabli in the Tovuz district. Excavations have been programmed since 2008 and are still in process. Sponsored originally by the Ministry of Foreign Affairs in France, they are also part of a joint ANR-DFG project "*Ancient Kura*" and now "*Kura in motion*" directed by Bertille Lyonnet, CNRS, Paris and Barbara Helwing, DAI, Berlin. Five main periods have been identified at Mentesh Tepe and confirmed by 14C dates, from the Neolithic to the end of the Early Bronze Age. Among the finds, a rather important quantity of metal objects and metallurgical finds has been unearthed. They give evidence of metallurgy for each period. The majority is dated to the Chalcolithic period (5th mill. BCE). Since 2009, the metallurgical finds are being investigated in the Research Laboratory for Archaeology and Materials Sciences at the German Mining Museum in Bochum. These recent studies, still in progress, allow a better understanding of the beginnings of metallurgy in the Caucasus.



## Early Greek and Aegean Metallurgy: The Role of Context in Patterns of Consumption

**Veronica Maxwell** (Open University-AL, London)

Findings from the field and laboratory on the nature of the earliest metalworking in the Aegean and Greek Mainland will be presented. New analytical data for metalworking and metallurgy is assessed in terms of scale and context, from procurement through production history to consumption. The evaluation is based on recently completed studies from two Aegean sites and ongoing research at two cave sites in Central Greece. The availability of copper alone does not explain the inception of metallurgy: procurement and production were also influenced by others drivers and a detailed assessment of variability, or intentionality, in participation in metalworking may offer the key to explaining the nature of these drivers. The integrated, interdisciplinary study reported here incorporates contextual studies with an analytical program of the evidence for metallurgy covering mineralogical, chemical and lead isotope analyses. Comparison with similar data from a range of material biographies and their patterns of consumption provides an effective means to understand the organization of production, process of innovation and context of emergence of metallurgy at this time.

## New Methodological Approach to Trace Ancient Metal Production: Gaul Mining from Limousin and Morvan (France)

**Sandrine Baron** (CNRS, Toulouse), **Callin G. Tamas** (Babes-Bolyai University, Cluj-Napoca), **Beatrice Cauuet** (CNRS, Toulouse)

The isotopic tracing from mines/ore bodies to archaeological materials (slags, metals, objects) constitutes a powerful tool in metal provenance studies. The rise of high-resolution mass spectrometers (MC-ICP-MS) currently facilitates accurate analyses of traditional and non-traditional isotopes, allowing thus precise and consequently more accurate interpretation. Nevertheless, these high precision isotope analyses on ores are often carried out in an elusive way ignoring the geological approach as well as the mining archaeology background. The currently used lead isotope ores database is not completely relevant for tracing the ancient metals for several reasons: i) the isotopic composition of the analyzed ores is usually not linked with their mineral paragenesis, ii) the analyzed ores are not those exploited by the ancient miners and iii) the ancient chaîne opératoire from ores to metal(s)/objects is not systematically considered. The metal production in Gaul (France) during Protohistoric times is a good example to highlight the importance of using geological and chronological/archaeological materials before any geochemical analyses. This refines notably the isotopic tracing. First results will be presented.

## Brass and Status, Unusual Surface Plating in the Roman Iron Age

**Arne Jouttijärvi** (Heimdal-archaeometry, Copenhagen)

Danish excavations have shown two technologies used for casting of copper alloys. From Elsinore, Copenhagen and Ribe imported, probably hessian, crucibles are known, often used for casting of leaded or unleaded tin-bronze. Opposed to these highly refractory crucibles stands a number of very large crucibles made from ordinary clay. These are interpreted as a kind of ladle described by Biringuccio in *De la Pyrotechnia* in 1540. The ladle served both as container for the molten metal and as a sort of furnace. Biringuccio type ladles were used for the casting of a bronze with low tin and high antimony content, often heavily leaded. This alloy was primarily used for relatively large objects as pots, mortars and church fixtures. The tradition of Biringuccio-style casting included the use of a specific alloy. In some fragments of hessian crucibles, high amounts of arsenic were identified. Silvery colouring of copper alloys with arsenic is known to have been used in alchemy. The finds were made adjacent to the place where Sophie Brahe, sister of the astronomer Tycho Brahe, lived in Elsinore. As one of the most learned women of her time, she is known to have dealt with both astronomy and alchemy.

## Mining in Roman and Early Byzantine Anatolia: Where They Dug?

**Marco Conti** ("Sapienza" University of Rome, Rome)

The study of Roman and Byzantine mines and mining is structurally impaired by a number of factors: the scarcity of ancient literary and epigraphic information, the abandonment of productive sites and the re-use in later periods of the same sites. In order to detect the sources of ore worked in the Roman and early Byzantine times in Anatolia it is necessary to collect data from a wide range of disciplines. With such a multifaceted approach, and drawing comparisons with the administrative system of the western provinces, it will be possible not only to locate extraction sites but also gauge the economic and social impact of the mining enterprise in Anatolian provinces in a long term perspective (1<sup>st</sup> to 6<sup>th</sup> c. AD).

## POSTERS

### Biringuccio-Style Casting, Hessian Crucibles and Alchemy - Casting of Copper Alloys and Traces of Alchemy in Medieval and Renaissance Denmark

**Arne Jouttijärvi** (Heimdal-archaeometry, Copenhagen)

Danish excavations have shown two technologies used for casting of copper alloys. From Elsinore, Copenhagen and Ribe imported, probably hessian, crucibles are known, often used for casting of leaded or unleaded tin-bronze. Opposed to

these highly refractory crucibles stands a number of very large crucibles made from ordinary clay. These are interpreted as a kind of ladle described by Biringuccio in *De la Pirotechnia* in 1540. The ladle served both as container for the molten metal and as a sort of furnace. Biringuccio type ladles were used for the casting of a bronze with low tin and high antimony content, often heavily leaded. This alloy was primarily used for relatively large objects as pots, mortars and church fixtures. The tradition of Biringuccio-style casting included the use of a specific alloy. In some fragments of hessian crucibles, high amounts of arsenic were identified. Silvery colouring of copper alloys with arsenic is known to have been used in alchemy. The finds were made adjacent to the place where Sophie Brahe, sister of the astronomer Tycho Brahe, lived in Elsinore. As one of the most learned women of her time, she is known to have dealt with both astronomy and alchemy.

### **Koban Bronze as the Integration of Technology and Objects of Art**

**Kolosov Vladimir** (Saint Petersburg State University, Saint-Petersburg), **Olga Sycheva** (Saint Petersburg State University, Saint-Petersburg)

Koban culture belongs to the world famous archeological cultures (the latest Bronze Age – the beginning of Iron Age). The culture is represented by many archeological sites and the most famous of them are Koban and Tli burial complexes. The complexes have rich burial inventory with unique metal tools. The chronological frames of the burial complexes are exactly unknown for the present time. In this study are represented the results of the researching of metal tools from Tli burial complex. Many iron and bronze tools belong to the objects of art. Special interest has the fact that some tools from burial complexes came from Caucasus and Urartu culture. Using full analyses of metal tools we have attempted to reveal the relative chronology and typology of burial complexes. Besides it has given us the possibility to see the influence of nearest regions for the development of metal industry of Coban culture.



### **T03S002 - CONCEPTS OF FORTIFICATIONS IN PRE- AND PROTOHISTORY**

**Organizers:** **Ariane Ballmer** (Ecole Normale Supérieure Paris, Paris), **Manuel Fernández-Götz** (University of Edinburgh, Edinburgh), **Dirk-Paul Mielke** (Westfälische Wilhelms-Universität Münster, Münster)

In many regions of Europe and beyond fortifications belong to the most impressive archaeological remains. Their study has a long tradition and today a multitude of aspects about architecture, function or symbolism have been explored. However, fortifications are generally examined in a temporally, regionally or culturally limited context. Going a step further, this session would like to bring into focus the concepts of fortifications, which can be cultural, temporal, regional, social, symbolic or functional, but also diachronological and supraregional aligned. An important point is the question of which elements of fortifications are culture-specific and which possibly could be regarded as convergence or even universal phenomena. What is 'Celtic' at Celtic fortifications and what makes them different from Greek or Bronze Age constructions? What similarities can be observed? The central request of the session is to highlight the diversity and the structural similarities of fortifications as well as to take a superordinate look with a critical discussion to them. The chronological focus should be limited to fortifications from the Neolithic to the end of the Iron Age. All contributions that go beyond the presentation of individual building constructions and which address the concepts behind fortifications are welcome.

### **ORAL PRESENTATIONS**

#### **Environmental and Cultural Factors in Development of Chalcolithic Fortifications in Bulgaria**

**Kamen Boyadzhiev** (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia)

The earliest probable fortification structures around settlements in nowadays Bulgaria date to the Early Neolithic (beginning of the VIth millennium BC). However, until the end of the Neolithic these constructions were quite rare and uniform. They are presented mainly by ditches with disputable function. The Chalcolithic period (Vth millennium BC) was marked by a number of changes in different spheres of life. Among them were changes in settlement patterns and architecture, which show a trend towards better defense. Fortifications have been attested around most of the settlements excavated. Comparison with other data, like increase in the number and variety of weapons, concentration of burnt settlements in particular time and region, etc., suggests that this was most probably result of tense situation and may be armed conflicts. Certain differences in the defensive structures are visible. They regard the topography of the settlements, the types of constructions (palisades, ramparts, ditches, stone walls) and combinations of them. The analysis of the available data and the chronological, territorial and cultural context of fortifications provide grounds to trace the factors, influencing the development and variety of these structures in the Bulgarian Chalcolithic: environmental conditions, cultural traditions and/or social situation.

### The Early Bronze Age Fortifications at Tell es-Safi/Gath, Israel

**Itzhaq Shai** (Bar-Ilan University, Institute of Archaeology, Ramat Gan), **Jeffrey R. Chadwick** (Jerusalem Center Professor of Archaeology and Near Eastern Studies, Brigham Young University, Utah), **Eric Welch** (University of Kansas, Kansas), **Jill Katz** (Yeshiva University, New York City), **Haskel Greenfield** (University of Manitoba, Department of Anthropology, Winnipeg, MB), **Aren M. Maeir** (Bar-Ilan University, Ramat-Gan)

Tell es-Safi/Gath is a multi-period site located on the border between the Judeans foothills and the coastal plain in central Israel. Survey and excavations over the last two decades have demonstrated that it was a major urban center for the region during the Early Bronze Age. Excavations have exposed portions (in two widely-separate excavations areas) of the fortification system that surrounded the site, which is well dated to the EB III. In this paper, we will present new evidence for the urban nature of the Early Bronze Age at the site, with particular focus on its fortifications. Special attention will be paid to the nature of construction techniques for the fortification system and the character of the settlement which it surrounded. We will then discuss and present data on issues such as: The reason for the existence of such a large fortified site during the EB of the region, its regional role during the EB III, and how these data shed light on other facets of early urban life during the EB of the southern Levant.

### Mud Brick Fortification Walls in Southern Levant during the Early Bronze Age - An Egyptian Perspective

**Marcin Czarnowicz** (Jagiellonian University in Krakow, Krakow), **Joanna Dębowska-Ludwin** (Jagiellonian University in Krakow, Krakow), **Agnieszka Ochał-Czarnowicz** (Jagiellonian University in Krakow, Krakow), **Karolina Rosińska-Balik** (Jagiellonian University in Krakow, Krakow), **Yuval Yekutieli** (Ben Gurion University of the Negev, Beer-Sheva)

En Besor, Tell es-Sakan and Tel Erani are well known sites located in modern Israel with remains of Egyptian presence dated back to the 4th millennium BC, both in terms of small finds and architecture. Among numerous mud brick buildings from these settlements in Tell es-Sakan and Tel Erani are especially massive structures described as city walls. Lack of foundations, typical shape of brick material used for their construction and the characteristic manner of bricks arrangement within a wall have many interesting analogies in genuine Egyptian monumental architecture from the similar period and discovered in Egypt in the Nile Delta at Tell el-Farkha. Thanks to combination of already published data with results of presently ongoing excavation projects at Levantine Tel Erani and Egyptian Tell el-Farkha a new perspective opens to the issues of early Levantine urbanization, the process of fortified cities development in the area and the Egyptian contribution to the idea of monumental brick fortifications in the 4th millennium BC. Our presentation will focus on comparative interpretation of data from Tel Erani (Israel) and Tell el-Farkha (Egypt) to discuss the general concept of early fortifications and the applied technology marked with features originating from two different cultural roots.

### Fortifications for the Elite, Connected Settlements for the People. Structures of a New Type of Fortifications in Middle Europe?

**Immo Heske** (Georg-August-Universität Göttingen, Seminar für Ur- und Frühgeschichte, Göttingen)

Bronze Age fortifications in Middle Europe show a different character in size and construction of the walls in different regions. One of the common concepts is the embedding in the landscape and a close distance to prehistoric routes. They are the centres. The structure of the known fortified settlements shown different areas of usage, sometimes surrounding settlements and creation of the landscape. Recent investigations bring up a new type of settlement structure. At one site different methods of prospection followed by strong excavations bring up surprising results: the fortification with an outer settlement going up to 30 ha. Different sites with new investigations from the Lusation Culture in the east, the Urnfield Culture in the south and parts of middle Germany has after this discussed pre-urban settlements in the European Late Bronze Age and the idea behind them. An important point is the question of local developments, long distance communications or short chronological sections with parallel building activities. Regarding structural similarities of the fortifications under consideration the regional landscape and cultural differences could be the pathway for further investigations.

### Bronze Age Fortification in the Ural Steppes (Russia)

**Andrey Epimakhov** (Institute of History and Archaeology, Russian Academy of Science, Chelyabinsk)

Traces of military activity is one of the most characteristic features of the Northern Eurasia Bronze Age. However military sphere is documented almost exclusively by weapon items. Fortification system are discovered only for a few cultures (III - beginning of II century BC cal). The Ural Sintashta settlements sites are characterized by closed fortification systems, regular organization of internal space and compact building. Despite the large scale excavations, reliable traces of hostilities were not found. Numerous traces of fires are not accompanied by finds of weapons and victims of conflict. There are no traces of injury in the burials. This raises doubts about the military mission of fortifications. Nevertheless, the erection and maintenance of these complex and time-consuming constructions must have had good reason in the eyes of the inhabitants. Probably, it was

a defense against real or perceived danger. Paradoxical combination of sophisticated fortifications and the absence of traces of military activity (typical for other areas too) can be explained by that the systems created not so much opposed to the assault as prevent it. Technical equipment for this kind of warfare emerged much later in the conditions of a professional army.

### **Hittite Fortifications between Function and Symbolism**

**Dirk-Paul Mielke** (University of Münster, Münster)

The remains of Hittite fortifications are among the most impressive archeological legacies of Bronze Age Anatolia and therefore their study is a very popular subject in Hittite archeology. However, most studies have confined their attention to simple, often uncritical comparative descriptions of the remains. In contrast the Paper will set the focus on the question as to which particular characteristics may be regarded as culturally specific and how far fortification elements share a universal character. In an overall examination diverse aspects of Hittite fortifications that range in purpose from the functional to the symbolic will be treated.

### **International Approaches in the Representation of Imperial Power: The Hittite Late Bronze Age Military Architecture at Tell Atchana, Ancient Alalakh**

**Murat Akar** (Koç University, Research Center for Anatolian Civilizations, Istanbul)

This paper focuses on the Late Bronze Age fortifications of Tell Atchana, ancient Alalakh; the capital city of the Middle and Late Bronze Age Kingdom of Mukish. The recent excavations conducted at the settlement revealed two large scale mud brick fortress structures dated to the second half of the 14th Century BC; the period when the region became under the control of Hittite Empire. The modification of 'space' in different sectors of the settlement during the Hittite administrative control was achieved by the application of innovative approaches, from the stand point of architectural technology and included the combination of various different construction techniques unknown prior to Hittite or local builders at Alalakh. In that respect, targeting the Hittite strategies applied in the presentation of imperialist notions and protection of the borderland, the uniqueness of the building projects and their hybrid nature is evaluated in the larger Eastern Mediterranean setting. Instead of attributing a solely Anatolian origin to these elements of defense in connection with the Hittite identity, an international approach is proposed in the methodology and ideology involved in the architectural technology, which included local, Mitannian and Egyptian construction principles adopted by the Hittite authorities in protection of the newly concurred landscape of Mukish and in the representation of the imperial power.

### **Late Bronze Age Fortifications in the Southern Carpathian Basin: Ritual, Memory and Politics**

**Vajk Szeverényi** (Hungarian Academy of Sciences, Budapest), **Péter Czukor** (Móra Ferenc Múzeum Szeged, Szeged), **Annamaria Priskin** (University of Pécs, Pécs)

Recent research has shown that southeastern Hungary and northwestern Romania are characterized by the emergence of a series of smaller and larger fortified settlements during the Late Bronze Age, ca. 1300-1100 BC. The size and character of these sites seem to vary considerably throughout the region concerned, with settlement sizes ranging from 1700 hectares to 1, and fortifications ranging from a simple single ditch to a system of multiple ditches and ramparts enclosing huge areas. The "function" of these sites is often controversial. While many automatically assume a defensive function, this can be questioned on numerous grounds. Based on our recent work at a ca. 400 hectare large fortified settlement near Csanádpalota in SE Hungary, we would like to review the available evidence on the character of occupation, the nature of depositions and the "defensive functionality" of the system of ditches and ramparts surrounding the settlement. We suggest that beyond the possible defensive function of the central enclosure of the settlement, much evidence suggests that the area provided space for various ritual activities identifiable through structured depositions and that the role of the enclosures was at least partly the invention of tradition through monumentality.

### **Is there more? Alternative Interpretations to 2nd century BC- 1st century AD Fortifications from South Romania**

**Monica Nicolaescu** ("Vasile Parvan" Institute of Archaeology, Romanian Academy, Bucharest)

Over the time fortifications constituted an attractive subject for archaeologists being until the present day in their attention. If at the beginning of professional archaeology, these structures fascinated and raised interest because of their construction techniques, afterwards the attention was focused over their interpretation. In the mid-late 2nd century BC the Carpatho-Danubian space is represented, among other aspects, by an impressive number of dava settlements, central places of intense commercial and craft activities holding also political meaning, belonging to certain territorial structures. Most of these settlements are fortified, and therefore were considered in a certain paradigm. The respective fortifications were viewed strictly from a technical perspective without being understood in relation with their landscape or other discoveries. This paper's aim is to propose an alternative to the traditional interpretations, trying to reach less approached fields in Romanian archaeology, such as the social significance of a fortification in relation with the inside structures and discoveries, without ignoring the landscape of each site which will be discussed.

## About the Upright-Stones Rows in Late Prehistoric Fortified Sites: New Approaches and Proposals

**Luis Berrocal-Rangel** (Universidad Autónoma de Madrid, Departamento de Prehistoria y Arqueología, Madrid)

In this speech we will defend new interpretations about this ancient defensive device known as “chevaux-de frise”, upright-stones bands that surround Late Prehistoric and Early Roman hill-forts from Iberia, British Isles and some isolated French and Italian fortified sites. Supporting on radiocarbon dates we defend the Bronze Age origin of this device that could be modified along the western European by later Iron Age and Roman military influences. Functionality would change too and we develop new approaches from the Landscape Archaeology that do not reject the defensive nature but they increase the symbolic meaning of these devices emphasizing the permanent character of the stone defences, and their monumentality and landscape impact. So we propose a Prehistoric origin that deep their explanation into oldest foundational and defensive European myths, as it could be translated from the mythical Greek figure of Cadmus and the Spartoi.

## What is Greek about Greek Fortifications?

**Rune Frederiksen** (The Danish Institute at Athens, Athens)

Greek fortifications have been one of the central subjects for the study of ancient architecture for many decades, and even more so within the past decade. A number of monographs and specialized articles describe the architecture, function and also social aspects of the thousands of city walls and other fortifications which spread everywhere the ancient Greek city-state established itself: the Balkans, western Asia Minor, Sicily and South Italy, North Africa, the Black Sea, Cyprus etc. But what was exactly Greek about those impressive architectural monuments and what was not? Which elements were taken over from neighboring cultures and which elements did other cultures adopt from the Greeks and why? This paper will discuss a few clear examples of both within a historical and social context.

## Early Iron Age Fortifications North of the Alps

**Ariane Ballmer** (UMR 8546 AOROC, École Normale Supérieure Paris, Paris), **Manuel Fernández-Götz** (University of Edinburgh, Edinburgh)

Between the late 7th and the 5th centuries BC, large fortified settlements, featuring imported goods and often outstandingly rich burials, and therefore traditionally called ‘princely seats’ (*Fürstensitze*) by scholars, emerge in the north Alpine area. In some cases these centres of power could cover an area of several dozen or even more than 100 ha and show an internal structuration. In any case they are evidence of a centralization process leading to the establishment of the first urban and protourban settlements in the history of Central Europe. The monumental fortification works, characterized by ditches, banks and gates are particularly striking. Apart from their very real defensive function, increasing attention has been drawn to their symbolic role during the last few years. The present paper aims to pursue the social role of these Early Iron Age fortifications by understanding them as a conscious orchestration of the elites and hence as identity-creating characteristics of the communities. Amongst other sites, the Heuneburg (Baden-Württemberg), with its mudbrick wall inspired by Mediterranean prototypes and the newly discovered stone gate, as well as the Glauberg (Hesse), where the bank-ditch-system is to be understood above all as a symbolic demarcation of a supra-regional sanctuary, will be consulted exemplarily.

## Iron Age Fortifications in Western Temperate Europe - Looking Back and Looking Forward

**Ian Ralston** (History, Classics and Archaeology, University of Edinburgh, Edinburgh), **Olivier Buchsenschutz** (UMR 8546 AOROC, École Normale Supérieure Paris, Paris)

Many thousands of enclosed, fortified sites of broadly later prehistoric date survive in varying condition across the landscapes of temperate Europe. They range in size from examples extending to less than 1ha to massive examples where their enclosures surround hundreds and occasionally thousands of hectares. Since the Second World War, interpretations of their enclosing works have oscillated between, on the one hand, the resolutely militarily functional and, on the other, the highly symbolic, as our knowledge of them has been progressively transformed by substantial quantities of field survey and excavation, and by newer approaches including the deployment of aerial survey in lowland agricultural landscapes, LiDAR etc. Founded primarily on evidence from examples we have excavated, we shall highlight a range of issues from the use of iron spikes in the timber-lacing of enclosing works to radical changes in fortification styles to suggest that the functional and the symbolic are often firmly intertwined in the surviving evidence.

## Iron Age Fortifications of Gabii/Italy

**Sophie Helas** (University of Bonn, Bonn)

This essay presents a project, which is dedicated to examine the fortifications of ancient Gabii and which was first managed by the German Archeological Institute Rome and by the University of Bonn since 2010. The inner structure of the settlement, which is well-known for the necropole of Osteria dell’Osa, is only sparsely investigated. I want to present the early fortifications as examples of the “cultura laziale” of the ancient Latium. As preliminary results we can presume, that the



inner acropolis was protected by a wall made of clay with wooden posts during the early iron age, probably in the ninth century BC. In the seventh century BC the whole settlement was surrounded by an elaborated agger wall which is typical in the region for the late iron age period. Is made of earth and stones e figured as improvement in an qualitative and quantitative sense. The massive defensive works surrounded now an area of 75 ha. The extended fortification offered for the inhabitants and immigrants a new security of their natural (water, plants, fields, livestock etc.) and cultural resources (houses, workshops, common institutions etc.) and marked the transition from the protourban to an urban community.”

### **Muri Gallici and Geländemauern: About the Functionality of Late Celtic Fortifications**

**Pierre Moret** (CNRS, UMR 6508 TRACES, Toulouse)

A prevailing tendency of Celtic studies since the last few decades is to question the defensive role of the fortifications of Late La Tène oppida, as it is assumed by some scholars that the symbolic and ideological dimensions of the city walls are more important than the function of defense. One of the main arguments that have been waved to deny military functionality to some of the more famous Celtic fortifications of La Tène D is the fact that they were much too big to be effectively defended. A comparison with very large city walls – known as Geländemauern – in other parts of the Ancient world, namely Greece and Etruria, will allow us to address this debate from a broader point of view. Moreover, more benefit than usually thought can be drawn on that matter from a careful reading of the few textual sources – especially Caesar – that give information on the poliorcetic experience of the Gauls.

### **Fortifications in and around Rome, 950 to 300 BC**

**Albert Nijboer** (University of Groningen, Groningen)

Defensive systems of main settlements in the immediate region around Rome are diverse during the period 950 to 300 BC. They consist originally of natural defenses, trenches as well as monumental earthworks with or without stone foundations. Often an efficient combination of fortification concepts is recorded to prevent the construction of full-blown defense works around the large settlements with a surface ranging from ca. 50 to 200 hectares. The beginning of the construction of city walls with rectangular stones is debated. They became more common from the 6th-5th century BC onwards. The circuit walls made of massive polygon stones, which were definitely constructed during the 5th and 4th century BC, expands the number of options for defensive systems. However such circuit walls seem not part and parcel of the original concepts of fortification in and immediately around Rome. As a concept it might have been adopted by the Romans soon after their conquests of peoples living in the mountainous interior of central Italy. Some issues regarding fortification concepts in central Italy are reviewed. The paper presents cases of fortifications at main sites around Rome such as Veii, Ardea, Fidene and Crustumerium revealing that concepts of defense systems vary considerably. These cases are subsequently integrated to address the long-standing debate on Rome’s earliest circuit walls.

## **POSTERS**

### **La porte de Babylone fouillée sur l’oppidum de Cordes-Chateloi à Hérisson (Auvergne, France)**

**David Lallemand** (Service départemental d’archéologie de l’Allier, Yzeure / UMR 8546 AOROC, Paris)

Les fouilles conduites sur l’oppidum d’Hérisson (Auvergne, France) ont livré les vestiges d’une porte monumentale incendiée et remaniée à plusieurs reprises entre la fin du IIe siècle et le milieu du Ier siècle avant n. è. On doit souligner l’existence, au sud du dispositif d’accès, d’un bastion collatéral construit avec la technique du murus gallicus, dont seules subsistent les façades formées de grands blocs de grès rouge taillés, les empreintes des bois de l’armature et les fiches en fer. La conservation de ce monument sur 2 m d’élévation revêt un intérêt scientifique particulier pour les spécialistes des remparts d’Europe celtique tempérée. Elle permet d’identifier avec une précision appréciable les différentes techniques de construction utilisées par les bâtisseurs et de prouver le rôle déterminant joué par le bois dans ce type d’architecture.

### **Symbolic Fortifications during Copper Age at the Lower Danube**

**Raluca Kogalniceanu** (Giurgiu County Museum, Giurgiu)

The word “fortification” almost automatically triggers into our mind the image of high walls, or at least of a sturdy palisade accompanied by a deep and large ditch filled with water. Even the archaeological dictionaries state that fortifications are constructions specially made to defend the settlements against outside attacks. A second function of the fortifications indicated by the dictionaries would be that of marking territorial limits. During my research on the spatial relationship between cemeteries and settlements during Copper Age at the Lower Danube, I discovered that the term “fortification” could apply to more subtle features and situations. In 25% of the analyzed cases, there was a natural or artificial barrier separating the world of the living from the world of the dead. This separation was usually done through a “defense ditch”, a body of running water, or a gully that runs between the settlement and the cemetery. The folklore of the Balkans records beliefs in



which water, for example, is presented as a border between the worlds. Since the size of these natural or artificial features is not usually impressive, they could be interpreted as symbolic fortifications that defend the living from the dead.

### **Autochthonous Development? Three Regional Centers of Middle Danubian Urnfield Cultures in Lower Austria**

**Michaela Lochner** (Institute for Oriental and European Archaeology, Austrian Academy of Sciences, Vienna)

The aim of the presentation is to show the connections and differences between three great Late Bronze Age hillfort sites: Thunau am Kamp, Oberleiserberg and Stillfried, situated in Lower Austria. The focus is on the Topography (favorable geographic position with good transport connections), Research History (systematic excavations in the 20th Century), Settlement Pattern (central settlements of the Podol Culture), Rampart (protected elevated position with rampart), Graves (findings/burials), Depots and Workshops/Particularities (ceramic and textile production; workmanship of bronze, leather and antler).

### **Contribution to Understanding the Fortification of Neolithic Settlements in Continental Croatia**

**Marija Mihaljević** (Municipal Museum of Nova Gradiska, Nova Gradiska), **Marina Matković** (Municipal Museum of Nova Gradiska, Nova Gradiska)

Archaeological investigations in recent years in the area of the northern Balkans, for example, sites Ravnjaš-Nova Kapela, Slavča-Nova Gradiška and Vidovci-Glogovi in continental Croatia, recorded several forms of fortification in Neolithic settlements. The paper presents examples from these sites, in comparison with similar forms of fortification in Neolithic settlements in this region. It will examine the need and the importance of fortification in Neolithic communities.

### **Aegean Elements and Influences in Central European Late Bronze Age Defensive Architecture (c. 1200-800 BC)?**

**Tomas Alusik** (Czech Centre for Mediterranean Archaeology, Prague)

The presence of big and fortified settlements (hillforts) in Central Europe is often given as an example of the possible influence of advanced Aegean prehistoric civilizations versus less developed local cultures in Central Europe. This hypothesis was formulated by archaeologists specialised in local Central European prehistory or by experts in Aegean prehistory, but not by specialists in defensive architecture or warfare. As a specialist in Aegean Bronze Age, I have been studying the defensive architecture since 2001 and will approach the problem from the Aegean perspective. In EAA 2009 conference I presented a paper dealing with this topic in a period c. 1800 - 1200/1100 BC. This paper should be considered a continuation of it, dealing with the period of the (most phases of) Central European Young and Late Bronze Age, c. 1200 - 800 BC. The core of the paper is the comparison of the actual sites of the Aegean and the Central Europe, especially in the former Czechoslovakia, and a synthesis of the common and different features. Based on these, a general conclusion on the possible existence and (if applicable) a direction of influence will be made.



### **T03S003 - TEXTILES IN A SOCIAL CONTEXT. TEXTILE PRODUCTION IN EUROPE AND THE MEDITERRANEAN IN THE 4TH AND 3RD MILLENNIA BCE**

**Organizers: Małgorzata Siennicka** (The Danish National Research Foundation's Centre for Textile Research SAXO Institute University of Copenhagen, Copenhagen), **Agata Ulanowska** (Institute of Archaeology University of Warsaw, Warsaw), **Lorenz Rahmstorf** (Institute for Pre- and Protohistory University of Mainz, Mainz)

Textiles and cloth making belonged to the essential daily activities of ancient people. The present session aims to thoroughly examine various cultural and social aspects of this crucial craft. It will focus on the later Neolithic, Copper and Early Bronze Ages in Europe and the Mediterranean. Studies of fabrics, textile and mat impressions, tools (spindle whorls, loom weights, etc.), inputs of experimental archaeology and scientific studies offer new important insights into the development of textile techniques and significance of fabrics in early prehistoric societies which will be further explored. We welcome papers on various aspects of textile production, such as the apparent lack of textile implements in the archaeological record in certain regions and periods; transfer of technologies, tools and finished products; dynamics of interactions with neighbouring and distant areas; alternations in textile production as a result of societal changes; craft specialisation; individual manufacture and organised industry; significance of textile making and use by individuals and entire communities; demand and consumption of fabrics; the amount of labour in the production of textiles; comprehension of the craft itself and the skills of craftsmen through experimental archaeology; the social and cultural role of prehistoric textile producers; value of implements and finished textiles.

## ORAL PRESENTATIONS

### Rendering Invisible Textile Tools Production Visible

**Eva Andersson Strand** (Danish National Research Foundation's Centre for Textile Research, Copenhagen University, Copenhagen)

One challenge for archaeology is that we can never expect to find all remains of the past and that an archaeological record never mirrors ancient everyday life accurately. Yet, in the interpretation of prehistoric society it is crucial to be aware of and consider this fundamental premise in our reconstruction of the past. This premise is particularly valid for textile research where the preservation of textiles and tools is extremely rare, and textile tools such as looms and spindles were and are preferably made of perishable materials, e.g., wood or bone. On the basis of textile tool and context studies in combination with experimental archaeology, the tacit knowledge of textile production has been explored. The results have given new and important insights and allow us to assess textile production without any preserved textiles and gives new interpretations and also new perspectives on the archaeologically invisible parts of ancient societies. By combining handicraft knowledge of textile techniques and tools, experimental textile archaeology the presentation will take this approach one step further: to discuss ways of approaching textile production without textiles or tools and to illuminate the complexity and variety in textile production in the Early Bronze Ages.

### Textile Impressions and Reconstructions

**Susan Möller-Wiering** (Danish National Research Foundation's Centre for Textile Research, Copenhagen University, Copenhagen)

Textile impressions and reconstructions Textiles are often preserved as impressions, most often in clay, while the fibres have gone. The idea of reconstructing such textiles is old. However, for evaluating the materials, a solid methodological basis is needed and shall be established in a project in collaboration with CTR, Copenhagen, and other institutions. A number of experiments will be conducted. During earlier projects at CTR, the implementation of scientific standards for archaeological experiments has been well approved. The experiments will be designed as reproducible test series. Variables are clay, moisture, drying or firing, type of textile and others. For evaluating the resulting impressions, imaging techniques and 3D printing will be tested. The comparison of the impressions and the original textiles will demonstrate the information content of the impressions. Then, the methodology will be verified on Bronze Age assemblages from the Eastern Mediterranean. Finally, the results will be related to textile tools.

### Why no Woven Textiles in the Iceman's Cloth? - Regional and Social Variation in Plant Fibre Technology around 3500 BC

**Eva Wigforss** (Department of Archaeology and Ancient History, Lund University; Department of Clinical Sciences, Lund University, Lund)

The aim of the paper is to discuss regional and social variation in plant fibre technology in Europe around 3500 BC. The starting point is a textile puzzle - first detected by Spindler (1993) - although well clad in sewn hides and twisted and plaited grass fibres, the Iceman from Ötztal was not wearing any woven textiles. Considering the findings from Moravia from Upper Palaeolithic, more than 24000 years earlier (Soffer, 2004), you would have expected the weaving technology to have been widely spread all over Europe during the times to come. Textile materials are perishable and only conserved for archaeologist to find through lucky conditions. However the sparse number of textile findings should not prevent us from recognising that technological evolution must have happened in this area - as well as in flint knapping. Probably, the evolution of textile technologies was slow and regional due to many factors like. However using deductive-logical reasoning about human's capacity to form communities of practice for technological and social learning as well as the high esteem of well manufactured cloth, we need an explanation to the initial question- why had the Iceman no woven textiles like earlier or contemporary findings, for examples from Switzerland?

### Earliest Anatolian Stamp Seals and Their Use on Earliest Textiles in the Light of Recent Evidence

**Ali Umut Türkcan** (Anadolu University, Department of Archaeology, Eskişehir)

The stamp's capacity to reproduce itself on any surface seems to have conferred great importance to it as a ritual device. This may also be related to the transition of memory to portable art. Stamp seals in Neolithic Anatolia have gained more attention with new excavations, especially from Aegean Coast Neolithic settlements as well as Lakes Side Region settlements. Analysis of the seals suggests that they might have been used on a variety of surfaces including textiles, leather, clay and loaves of bread; they may even have been used for tattoos. Interestingly, seal impressions on clay have not been found at Çatalhöyük or any other Neolithic settlement in Anatolia so far. The topic will be discussed mainly with the evidence from Neolithic Anatolian stamp seals that are indistinguishable from textile stamps known ethnographically from Balkans and

South America. Neolithic Period Çatalhöyük stamp seals will be displayed within their contexts. Actually, their small size would fit well with the production of narrow linen strips and decorating the borders of larger textiles. Stamp seals found in the same contexts with spindle whorls, however, point to a domestic association with textile production in Neolithic settlements in Anatolia as well as in the Aegean Realm.

### Textiles from the Chalcolithic Period in the Southern Levant

**Orit Shamir** (Israel Antiquities Authority, Jerusalem)

Hundred textiles, spindle-whorls and parts of looms from the Late Chalcolithic period were found in 400 natural caves dating to around 4000 BCE in the Judean Desert in Israel. These are the earliest textiles found in the Southern Levant give exceptional insight into early textile and serves to confirm that the textile crafts were already very advanced and accomplished in the 5<sup>th</sup>–4<sup>th</sup> millennium BCE production. Linen threads are known in Israel 10,000 years ago from Murabba'at caves (attached to a comb) and later at fabrics (not made by a loom) from Pre Pottery Neolithic Period Nahal Hemar, 7000 BCE. Flax is the sole material for the manufacture of textiles till the Middle Bronze in the Southern Levant when wool appeared. The Chalcolithic textiles from the Cave of the Treasure, the Cave of the Warrior, Nahal Ze'elim and other caves will be presented. They have the characteristic mixture of S-spun and S-plied threads and indicate splicing, a technique that was used for better cohesion. I will discuss the differences and similarities compare to textiles with the phenomenon of splicing in neighboring regions other regions – Egypt, Mesopotamia, Neolithic and Bronze Age pile-dwelling settlements of eastern Switzerland. They will be compared to earlier textiles were found in Asia Minor – Neolithic Çatal Hüyük and Çayönü.

### Textile Production in Western Anatolia in the 4th and 3rd millennia BC

**Christopher Britsch** (Institute for Oriental and European Archaeology - OREA, Vienna), **Barbara Horejs** (Institute for Oriental and European Archaeology-OREA, Vienna)

The production of fibers, fabrics and textiles is an inseparable part of daily life of every society – modern and prehistoric. But since direct evidence in form of the textiles themselves is very rare in prehistory, the link to prehistoric textile technologies is often the study of tools. These tools include spindle whorls, loom weights, needles, awls and combs. Analyzing the shape, weight and signs of usage gives information about the features of products as well as the techniques and in some cases even the material used. Based on these analyses and reconstructed working process it seems possible to determine the time and labor needed and therefore the social relevance and impact of prehistoric textile production. This paper will show the development of textile production in Western Anatolia in the 4th and 3rd Millennia BC. The focus of this work is set on changes and continuities in tool inventories, of course with consideration of textiles themselves and imprints, if available. The aim is to give a statement about the extents, importance and potential social impact of textile production in Late Chalcolithic and Early Bronze Age societies in Western Anatolia.

### Continuity and Change in Textile Making at Arslantepe (Malatya, Turkey) during the 4th and 3rd millennia BCE

**Romina Laurito** (Danish National Research Foundation's Centre for Textile Research, Copenhagen University, Copenhagen)

Arslantepe offers an excellent example to study the spinning and weaving activities from Late Chalcolithic Age onwards in South-Eastern Turkey. The thorough analyses on textile implements has already offered us insights into textile production in a crucial site in the Malatya plain from the 4th millennium BCE. Spindle whorls of different shapes and weights, loom weights in various forms and weights, and other textile tools testify the presence of specialised craft-workers. This paper will focus on the continuity and change of elements in textile production at Arslantepe over time. The description will start from the Late Chalcolithic 3-4 (3800-3350 BCE) settlement, which exhibits the earliest evidence of a hierarchical society, move to the palace" period (Arslantepe VI A, 3350-3000 BCE) up until the phase when the site was abandoned and end with the following period, characterised by a fortified village (Arslantepe VI B2, 2900-2750 BCE). The apparent absence of some textile implements and the appearance of new tools in the archaeological record provide evidence of different technological levels throughout. The study includes fabrics and textile tools in different social and cultural contexts and demonstrates how changes and alternations in demand, production and exploitation of textile are strictly linked to context.

### Secondary Urbanization and Textile Industry in Northern Levant

**Luca Peyronel** (University IULM, Milan)

The paper discusses the epigraphic (Ebla state archives) and archaeological evidences of textile industry in northern Levant during the period of urbanization marking the region during the early Bronze Age. The manufacture of textiles encompassed a wide range of socio-economic contexts, including large urban centres, such as Ebla, where it was under the control of the public administration, and semi-nomadic groups and settlements located in the arid margins. Wool and wool products were a fundamental resource of the region used in the economic interaction at different social level. They represented a 'value' in the exchange system, and at the same time a necessary every-day product. Moreover, textile manufac-

ture (organization, control and final products consumption) will be analysed taking into account the economic processes linked to the growth, apogee and decline of the early Syrian cultures.

### **Looking for a Lost Thread. Approaching Later Neolithic Aegean Textiles through Pictorial Evidence**

**Kalliope Sarri** (Independent researcher, Athens)

The study of early textiles is a rapidly developing field. Due to an increasing amount of new projects, ranging from the study of textile residues and implements to the scientific analysis of raw materials, our knowledge of European Neolithic textiles has recently improved considerably. Despite that progress, our understanding of Aegean Neolithic textile technology remains insufficient, leaving many open questions about its origins and evolution. Two types of evidence can help compensate for this lacuna: textile patterns on pottery and figurine decoration representing garments. The presence of woven designs on pottery articulates a clear transfer between two media within the field of household crafts. Such transfers represent a mental repertoire of shapes, proportions and values which can and do transcend the boundaries of an individual medium. Their evaluation is a major aid in recognizing intellectual achievements and the manner in which they could possibly be applied to various daily-life uses. This paper explores the pictorial evidence for textile production in the Aegean Later Neolithic, focusing on depictions of garments on figurines and woven designs on pottery and seals. It also suggests a reassessment of decorative arts by exploring their linkages to technology and economy.

### **Textiles in Neolithic Greece: Evidence from Other Media**

**Lily Bonga** (Independent Scholar)

Despite the fact that perishables materials, such as textiles, rarely survive in the soils of Greece, there is abundant support for weaving. This evidence includes the tools used in producing cloth, such as spindle whorls and bobbins for the spinning of wool, loom-weights, shuttles, and shed rods for weaving on an upright loom. The types of weaves are best known from impressions found on the bottom of pots, and are mostly simple (tabby or canvas/basket). Impressions have also shown that fabric was used as coverings for walls and floors, as well as used in partition screens. Details of decorated cloth come from painted clothing on figurines and from painted motifs on pottery, which, in some instances directly copy woven patterns. "Pintaderas," or large clay stamps, were also used with added pigment to create patterns on woven cloth. The primary types of woven cloth consisted of flax, which is indicated in the archaeobotanical record, and wool, which is known both from faunal remains and the existence of spindle whorls and bobbins. Textile production in the Neolithic period, humble as it may be, laid the foundations of what would become a prominent craft specialization and trade item in the Bronze Age.

### **First Threads: Textile Production in Neolithic and Early Bronze Age Crete**

**Joanne Cutler** (Danish National Research Foundation's Centre for Textile Research, Copenhagen University, Copenhagen)

The significant numbers of loom weights dating to the first half of the second millennium BC, recovered from sites across Crete, provide extensive evidence for the production of textiles in both palatial and non-palatial contexts during the Minoan Protopalatial and Neopalatial periods. The history of textile manufacture on Crete extends back much further, however, into the later Neolithic period. The manufacture of cloth, from the procurement of the raw materials to the finished fabric, is an extremely labour intensive process; as in the later periods, making textiles would have constituted a significant part of the everyday activities of these early prehistoric communities. This paper will examine the Cretan Neolithic and Early Bronze Age evidence for the production of cloth, considering technological and social aspects of this production. In the absence of actual textile remains, recent advances in textile experimental archaeology now make it possible to ascertain the types of textiles that individual textile tools would have been suitable to make, and the insights that this can provide into the nature of textile production in the Neolithic and Early Bronze Age periods on Crete will be discussed.

### **Textile Production in the Early Bronze Age Argolid - Continuity or Change?**

**Małgorzata Siennicka** (Danish National Research Foundation's Centre for Textile Research, Copenhagen University, Copenhagen)

During the Early Bronze Age II-III (3rd millennium BC) Greece witnessed significant cultural and societal changes, most likely resulting from increasing commercial contacts and cultural influences from the adjacent areas of Anatolia and the Balkans. These changes are particularly well documented at two sites in the Argolid, Tiryns and Lerna. Among other things, alterations of textile tools can be observed, e.g. the appearance of new types of implements or variation of the already existed. This applies to certain classes of spindle whorls and loom weights used in EH II-III, such as heavy hemispherical, biconical (plain and incised), spherical and conical spindle whorls, clay spools (perforated and non-perforated), as well as large conical and crescent-shaped loom weights. Due to the wide range of types and dimensions of spindle whorls and loom weights, it can be suggested that a high variety of threads and textiles were manufactured at the same time, possibly depending on the type of fibres used (animal, plant), applied textile techniques, and required types of fabrics. In the paper I discuss changes and continuity of textile techniques and manufacture, based on the analysis of textile tools primarily from southern Greece.

## Yarn Production at Communities of the Aegean Islands in the Early Bronze Age

**Sophia Vakirtzi** (University of Crete, Rethymnon)

The production of yarn is a distinct stage in the textile manufacture operations and it entails itself a chain of activities, from the collection of fibers to the twisting of thread, and consequently the dyeing of yarn. However, only the stage of spinning fibers into thread is usually detectable in the archaeological record, through the recovery and analysis of spindle whorls, the objects which add momentum to the twist of the spindle. Spindle whorls are technological and cultural markers of this industry, but they can also provide evidence for the organization and the scale of production. This paper attempts an assessment of yarn production at communities of the Early Bronze Age Aegean islands, on the basis of evidence collected from a number of significant sites. Spindle whorls from Early Bronze Age settlements of seven Aegean islands are analyzed in terms of typology, function and distribution. The results are presented and compared in a discussion for the technological and economic choices related to this industry in the 3rd millennium, an era when the Aegean island settlements manifest for the first time signs of urbanization, a phenomenon with consequent effects on craft specialization in various fields, textile manufacture being one amongst them.

## Looking for an Invisible Tool – A Potential Use of a Loom with a Rigid Heddle in the Bronze Age Aegean

**Agata Ulanowska** (Institute of Archaeology, University of Warsaw, Warsaw)

Loom with a rigid heddle is a type of a band loom of a very simple construction. It is universally used for weaving narrow patterned bands and so called “starting borders” (bands, whose long weft threads are used for warping the warp weighted loom). The moment in which the loom with a rigid heddle was invented is not known, however it is and was widely spread in many regions from South America to Northern Europe. Because of its simplicity and applicability for warping the warp weighted loom, it is suggested that the loom with a rigid heddle might be an implement of a very long ancestry. Its beginnings could be at least contemporary with an appearance of the warp weighted loom itself. In my paper I would like to suggest a possible use of specialized band looms for weaving bands and starting borders in the BA Aegean, of which the loom with the rigid heddle seems to be one of good candidates. A potential support for this suggestion might be provided by the Aegean iconography (including frescoes and the glyptic art) and by technical analysis of patterned bands and starting borders.

## How It All Came about? A Cradle of Chalcolithic Textile Innovations

**Tomasz Jacek Chmielewski** (Institute of Archaeology, University of Wrocław, Wrocław)

When Eneolithic civilization of so-called Old Europe is considered, almost every piece of evidence points to communities of the Sălcuța-Krivodol-Bubanj Hum-Maliq complex as the most inventive ones in regard to textile production techniques. It appears that all crucial innovations that spread all-over the south-eastern and central Europe in the end of the 5th and in the first half of the 4th millennium BC, triggered the first weaving “boom” and consequently laid foundations for further development of weaving-related crafts, come from the mentioned region of Balkan Peninsula. The main objective of this paper is to present this step extensive progress from the technological as well as socio-historical point of view. In the first part of the paper the author describes essential archaeological evidence of these profound developments in textile technology and sets these material correlatives of these changes in their cultural and chronological context. In the following part of the discussion the author advances a thesis that in the initial period of their development weaving and spinning evolved as prestigious technologies and that the fact of all the related inventions being made in this very part of Balkan Peninsula in the second half of the 5th millennium is no mere coincidence.

## Social Contexts of Textile Production in Bulgarian Later Prehistory (4th-3rd millennia BC): Value of Implements, Textiles of Value

**Petya Hristova** (Independent scholar, Menlo Park)

During the period between the later Neolithic and Early Bronze Age in the Balkans, Greece, and the Aegean an intensified regional interaction is reflected in an apparent increase of expressive materiality, walled settlements, ornamented pottery. Textile production, at some scale in particular sites, also provides a background for changes and transformations. On the example of sites such as the settlement at Krivodol (northwest Bulgaria) and Mandalo (in Central Macedonia in Greece) where various productive activities take place inside the wall, including textile manufacture and metalworking, this paper deals with specific classes of decorated tools and implements additionally embellished with decorative materials that might be associated with textile making. It becomes apparent that although textile tool variety and wide distribution are comparable to those of staple artefact categories such as graphite painted ware, important aspects of textile production remain elusive. The lack of syntheses with respect to recent research and problems of descriptive definitions, on the one hand, and on the other, of new field projects still hamper the study of textiles in southeast Europe addressing the significance of textile making in emerging multimedia workshops and cross-craft interaction or the social and cultural role of prehistoric textile producers, among other topics.



## Unspinning the Copper Age Textile Production on the Border between Southeast and Central Europe

**Ana Grabundzija** (Excellence Cluster TOPOI Spatial Environment and Conceptual Design Research Area, The Textile Revolution Research Group, Berlin)

Within the interdisciplinary TOPOI project “Textile Revolution”, a doctoral research on the introduction of wool bearing sheep in Southeast and Central Europe is conducted on the basis of indirect archaeological evidence that suggest use of wool in textile production. Published and unpublished 4th and 3rd millennium spindle whorls and other textile tools from recently investigated sites in the Pannonian and Peripannonian region are collected and processed by means of a specially designed database, enabling the investigation and explanation of spatio-temporal differences and similarities in Copper age textile production. Research focuses to provide arguments for the appearance and spread of wool as a new raw material. The working hypothesis is that the introduction of woolly sheep in the investigated region presumably led to a shift towards animal fiber processing, which should be reflected at least statistically in the associated spectra of textile related artefacts. Main question imposed is to what extent are the technological changes supplying arguments for the raw material and fiber distinction. Investigated sites in this study offer a detailed archaeological context-related analysis for textile production, mainly spinning. Exploring and pinpointing its specifics on a micro-regional level provide a basis for further contemplation on culture and tradition related questions.

## About Half of a Tumulus and a Funerary Veil in an EBA Context (Eastern Romania)

**Neculai Bolohan** (Alexandru Ioan Cuza University of Iași, Iași), **Cirpian Lazanu** (Muzeul județean “Ștefan cel Mare” Vaslui, Vaslui), **Paula Mazăre** (“1 Decembrie 1918” University of Alba Iulia, Alba Iulia)

The preventive archaeological research offers many surprises at which we are trying to answer. In such a context, with the occasion of an ordinary archaeological field evaluation, we were able to investigate the western half of a tumulus. It was a survival of a funerary monument destroyed by the bull-dozer blade in the 60s when it was set up a gateway between two towns in eastern Romania. In this cultural transit area there are numerous archaeological monuments of this type. Some of these have been investigated, some were published, but none offered any surprises in connection with the practice of an ancient craft often forgotten by local archaeologists. Thus, by archaeological excavations we have reached up to -3.00 m, where it was discovered a funerary structure which consists of a woven structure (dimensions: 4,90 x2, 90m), the remnants of a wooden structure, a burial pit, two lumps of ochre and the anthropological remains of an adult. The woven structure consists of several pieces, as demonstrated by fiber/threads orientation and the existence of a hem for some segments. These multiple fabrics are represented by mineralized white prints and covers all the funeral area. The whole complex was classified based on similarities with some findings from the North Pontic, in the EBA, in a period between 2800-2500 BCE.

## The Warp-Weighted Loom of the Early Bronze Age in Present-day Bulgaria: Traditions and Innovations

**Vanya Petrova** (St. Kliment Ohridski University of Sofia, Sofia)

The history of the warp-weighted loom in present-day Bulgaria can be traced back to the onset of the Neolithic period, attested by numerous finds of loom-weights, often found in groups on the floors of Early Neolithic houses. Since then, the textile production exhibits a smooth development at a household level with a peak in the second half of 5th mill., during the Late Chalcolithic period (according to Bulgarian chronology). Following a long period of a drastic decrease of loom weight finds in the archaeological record, the warp-weighted loom flourished again in the second half of the 3rd mill., during the third stage of the Early Bronze Age. Though the EBA loom shows clear connections with the earlier finds, there are certain novelties in morphology and spatial distribution of the finds, suggesting important changes in both technology and organization of textile production. The present paper aims, through research of the archaeological information, to offer some insights into the dynamics in the local development of this weaving tool and to explore its sensitivity to major cultural and social transformations.

## POSTERS

### Untypical Tools Connected with the Textile Production from Lower Tundzha in the Prehistory

**Todor Valchev** (Regional Historical Museum at Yambol, Yambol)

During the tenth millennium BC, in the area known as the “Fertile Crescent”, the transition from hunter-gatherer to farming methods is apparent. Soon after the domestication of sheep, the Neolithic people began to treat their wool and to produce different kinds of cloth and yarn. During archaeological excavations in all prehistoric settlements, clay spindle whorls and clay loom weights were found. In the second half of the sixth millennium BC, tribes appeared on the Balkan Peninsula bringing with them Neolithic culture. Using the valleys of the big rivers, they settled in the territory of the Balkan Peninsula. The aim of this poster is to present some untypical tools connected with textile production during the Prehistoric period. These include 3 bone spindle whorls, 1 stone spindle whorl and 1 stone loom weight. The last is made by a broken stone tool. These artefacts are kept in the fund of the Regional Historical Museum – Yambol, Bulgaria. They were found



during archaeological excavations or handed over to the museum. These rare, interesting and untypical finds present the resourcefulness and inventiveness of the prehistoric people who inhabited the Valley of the Tundzha River.

### **Woven Fabrics in the Andronov Costume**

**Emma Usmanova** (Archaeological Expertise Scientific Organization, Kazakhstan, Almaty)

The first evidence of woollen cloths and products made of them were found at the Andronov burial site of Siberia. An important archaeological find demonstrating a special character of the Andronov textile was found in an Alakul tomb (the 2<sup>nd</sup> millennium BC) of the Lisakovsk burial site I (Kostanay region, Kazakhstan). The particular soil conditions of the site allowed for a good preservation of a textile base of a woman's headgear, which served as a decorative headdress. Mostly it consisted of woollen braids of a brown-red colour. To manufacture them a diagonal-twill weave of two kinds was used: for the width of 20 mm 24 threads were used, and for the width of about 10 mm 12 threads were used. Another piece of a manufactured article was found in an Alakul tomb. It was probably a part of a short caftan or a jacket lining. The cloth sewn from separate braids was likely to be the base for creating a variety of different things of the Andronov clothes (the 2<sup>nd</sup> millennium BC). Plaiting (handmade and on boards) was a forerunner of the textile manufactured by means of looms, and the Andronov costume demonstrates its priority in the woven textile technology in the 2<sup>nd</sup> millennium BC.

### **Creating Semantic Web Ontologies for Ancient Textile Production Material**

**Frank Lynam** (Digital Arts and Humanities PhD candidate, Department of Classics, Trinity College Dublin, Dublin)

This poster asks how ancient textile production material might best be represented within the Semantic Web. Data ontologies and metadata are terms that have gradually seeped into the consciousness of the 21st century archaeologist as Big Data and data mining play increasingly greater roles in the praxis of the discipline. As archaeologists we have always had to make decisions about how we structure data. The difference now is that the future reviewers of this data are more likely to be an algorithm than an archaeologist. Machines lack the observational and taxonomic skills that humans take for granted. For instance, it might be clear to a human that a title accompanying a photograph relates its creation date and author. For a machine, without any additional guidance, this simple deductive process might prove beyond its scope. Data ontologies offer one possible working solution to the problem of how to make data readable to machines. This poster takes textile production material from the Cretan site of Priniatikos Pyrgos as a starting point with which to introduce the challenges of creating ancient textile production material ontologies, while also speculating on the potential interpretive dividends that such an approach might deliver for the field.



### **T03S004 - ARTISANS RULE: PRODUCT STANDARDIZATION AND CRAFT SPECIALIZATION IN PRE-HISTORIC SOCIETY**

**Organizers:** **Jasna Vuković** (Department of Archaeology, Faculty of Philosophy, University of Belgrade, Belgrade), **Ina Miloglav** (Serbia and Department of Archaeology, Faculty of Humanities and Social Sciences, University of Zagreb, Zagreb)

Social dimensions of craft production are the most intriguing issues in archaeological studies of technology and product standardization, and craft specialization are the most challenging among them. Generally speaking, the identification of specialization, and its definition and character in the society, is archaeologically as challenging as it is unobliging. Reduction in variability in shapes and dimensions of products, as well as simplification of production procedures applied, usually define the notion of standardization. The nature of causal relationship between standardization and craft specialization is still, however, topic of many debates. At the same time, considerations about specialization and craft production are often the only possible source of information for understanding prehistoric social organization. Therefore, conditioning of the standardization as well as various societal needs related to the organization of production must be viewed in the wider context which includes settlement organization as well as socio-economic processes. Significance of technological choices and decisions that artisans make during production sequence must be stressed. In order to reveal some aspects of social relations it is of great importance not only to note specific choices: they need to be adequately explained. Finally, complete insight into organization of production and presence of specialists can be achieved only by examination of mutual relations of different craft products (pottery, stone and bone tools, for example). Therefore, the main questions this session is aimed to address are: • What are the methods for assessing presence of standardization? • Does the presence of any kind of standardization necessarily imply presence of specialized craftsmen? • How specialists can be identified in archaeological record? • What are the criteria for assessing the presence of craft specialization? • Who are the specialists? Social status and gender • Are standardization/specialization caused by environment conditions (i.e. raw materials and their availability) or by social and economic factors? • Are the choices the craftsmen made caused by social pressure, traditional knowledge transfer, or practical reasons? • Do different degrees of standardization between different classes of products, pottery and ground stone, for example, reflect different stages of specialization and social position of craftsmen? • What are the criteria for identifying community specialization in archaeological record? • Can organized production be defined

only by indirect evidence (i.e. when product itself becomes the proof of specialized production)? • By which parameters the specialization and organization of production, along with socio-economic conditions of a particular community can be confirmed? • How can demand and supply as important components of organized production can be defined? (context of the material, morphological analyses, raw material analyses, quantitative and qualitative data, use-wear and use alteration analysis) Contributions: Speakers in this session are invited to address some of the following issues: • Case studies with a wide range of materials for assessing presence of product standardization, intensity of production or craft specialization • Theoretical considerations about standardization and/or specialization and craft production in general • Ethnoarchaeological case studies or experiments designed and conducted in order to resolve specifically formulated archaeological questions related to craft production and position of craftsmen within the society.

## ORAL PRESENTATIONS

### **Standardization of Ceramic Assemblages: Transmission Mechanisms and Diffusion of Morpho-Functional Traits across Social Boundaries**

**Valentine Roux** (French National Centre for Scientific Research, Paris)

A present-day situation is examined in order to study the conditions for the standardization of ceramic assemblages. The narrative reports on the widespread adoption of a granite tempered water jar by two social communities of potters who used to produce distinct ranges of morpho-functional vessels. It raises the puzzling question of the diffusion of morpho-functional traits across social boundaries. The analysis of the transmission mechanisms shows that diffusion of such traits occurred both through indirect and direct transmission. Indirect transmission occurred at the inter-group level while direct transmission under the form of technical guidance occurred at the intra-group level. These were triggered by the intention of the artisans to produce a model valued by the consumers. This intention was initiated by the collapse of the previous economic system. The highlighted regularity states that, in an area of previously diversified ceramic production, standardization of morpho-functional traits characterized by high observability and triability can be achieved with or without interaction between potters depending on different transmission mechanisms. It states also that when standardization takes the place of a diversified production it signals that the “rule” maintaining the previous diversity of the ceramic production has been transgressed and therefore the occurrence of major socio-economic changes.

### **The Potter’s Craft in Moldavia, Romania. Ethnoarchaeological Research on Ceramic Production and Technology**

**Felix-Adrian Tencariu** (Interdisciplinary Research Department - Field Science, ‘Alexandru I. Cuza’ University of Iași, Iași)

The prehistoric potter’s craft and its complex aspects, such as modes of production, standardization, specialization, technological/cultural choices, and social status stand as issues of high interest for the archaeologists, but sometimes difficult to approach strictly by field archaeology methods. Bearing in mind some unsolved question concerning the above mentioned problems, an ethnoarchaeological case study was conducted over the few remaining potters from Moldavia, a historical region of Romania. 18 potters from 11 localities were interviewed and observed, having as main goal the deeper, holistic understanding of the chaîne opératoire in a certain region (relatively small, with little ethnic and cultural diversity), including technology and human behaviour, in relation with the environment and the economic and social context. The paper will present some results of this research and their possible implications for archaeology. The main issues addressed here are the pottery production and distribution modes, the obvious product standardization versus some significant dissimilarities of the technological choices, and the social identity, in terms of gender, class, legal status and perception of the potters about themselves and their craft.

### **Epipalaeolithic Craft Specialisation and Bead Manufacture Inferred from Marine Shells Found at Praileaitz I (Basque Country, Spain)**

**Solange Rigaud** (Université de Liège, Prehistory Department, Liège), **Francesco d’Errico** (Univ. Bordeaux, CNRS-UMR 5199 PACEA, Équipe Préhistoire, Paléoenvironnement, Patrimoine, Talence), **Marian Vanhaeren** (Univ. Bordeaux, CNRS-UMR 5199 PACEA, Équipe Préhistoire, Paléoenvironnement, Patrimoine, Talence), **Xavier Peñalber** (Sociedad de Ciencias Aranzadi, San Sebastian)

Epipalaeolithic craft specialisation and bead manufacture inferred from marine shells found at Praileaitz I (Basque Country, Spain) The shell accumulation at Praileaitz I provides new data to investigate the Epipalaeolithic social organisation linked to bead manufacture. Our method is based on identifying the accumulation’s taxonomic diversity combined with a taphonomic, morphometric, and microscopic analysis of the shells. The assemblage, composed exclusively of *Littorina saxatilis* and *Littorina obtusata*, provided no evidence for the shell’s being suspended as ornaments. Comparisons with reference collections suggest the shells were collected by humans from a thanatocenosis, excluding collect for consumption. A high proportion of the shells showed breakage resulting from crab predation. The frequent use of these shells as personal orna-

ments in the region suggests that the accumulation represents discarded raw material unsuitable for bead manufacture. The shells suitable for making ornaments were exported from the site to be transformed into beads elsewhere. The complete absence of associated artefacts suggests a short-term occupation of the cave. Our results also show tasks sharing amongst group members: rejection of shells, despite a targeted procurement, suggests that individuals charged with collecting the shells were not those who decided which shells were suitable for bead manufacture.

### **Craft Specialization in Hunter-Gatherers Society? Stone Axe Production in Onega Lake, Russian Carelia** **Alexey Tarasov** (ILLH KRC of RAS, St. Petersburg)

Subsistence system of Mid-Holocene populations in Eastern Fennoscandia was still primarily based on hunting and gathering, probably also with small-scale agriculture, evidences for which are rather vague. However, the presence of large long-term dwellings and active participation in long-distance exchange gave reasons to some researches to propose remarkable degree of cultural and social complexity. The paper is devoted to discussing organization of lithic (stone axe) production in Onega Lake area, which provides evidences for possible development of craft specialization and farther supports these claims. Selective choice of the raw material of very high quality (mostly metatuff), the most sophisticated technology that had been ever used for making stone axes in prehistoric Karelia, the highest recorded degree of morphological standardization, spatial separation between production and consumption, spread of the final products over a very wide territory definitely required quite developed logistics of manufacturing and distribution and made participation of all adult males in this activity quite improbable. The paper concentrates on discussion of recent field research in the production area, including small-scale excavations and surface collecting. Issues of the scale of production, territorial organization, degree of craftsmanship will be addressed.

### **Specialization and Standardization in the Vinča Culture: The Case Study of Bone Industry**

**Selena Vitezović** (Archaeological Institute, Belgrade)

The craft production, its organization, technological aspects, and especially the question of specialization in prehistory are long present in the archaeological literature; however, the changing theoretical paradigms in the late 20th- early 21st century have demonstrated the need for new or revised theoretical concepts in addressing these questions. This is especially important for the Neolithic period, as this is the period of first permanent settlements, period of important social and economic changes, when also new technologies emerge. The Vinča culture of the Southeast Europe (Late Neolithic/Early Chalcolithic) is the period when increased production in all crafts is observed, period of introduction of copper metallurgy and long-lived settlements, with presumed elaborated and diverse economy. In this paper a special focus will be placed on the industry from osseous raw materials, especially on questions of raw material management, methods for assessing standardization, mainly through the technological viewpoint (concept of “manufacturing quality continuum”, created by A. Choyke), reconstruction of working areas and possible workshops, possible regional specialization in exploiting red deer antlers, modes of use and reuse of artefacts and the place and role of bone industry in the everyday activities of the people of the Vinča culture.

### **Women Labour and Household Production: Emergence of Specialized Potters in the Late Neolithic of the Central Balkans**

**Jasna Vuković** (Department of Archaeology, Faculty of Philosophy, University of Belgrade, Belgrade)

Social aspects of pottery production are the most intriguing issues in pottery studies. Pottery manufacture in Neolithic communities is usually regarded as a small-scale production of part-time female artisans. Presence of craft specialization and factors influencing the beginnings of this long-lasting process were, however, very rarely considered. Analyses of standardization, production sequence and other technical aspects of the Late Neolithic Vinča pottery revealed presence of two completely opposite phenomena, leading to conclusion that during the Late Neolithic many changes in organization of production occurred. Lack of formalized workshops and high conservatism in execution of tasks during production sequence indicate non-specialized household production. On the other hand, shape and size standardization of certain vessels classes, and presence of both elaboration and simplification in production steps depending on vessel function, indicate presence of specialization. It is argued that the occurrence of these two extremes indicates presence of initial stage of pottery craft specialization, reflecting economic intensification and changes in social organization in the Late Neolithic society.

### **Standardization of Vinča Culture Pottery Production at the Dawn of the Metal Age: Preliminary Evidence from the Site of Pločnik, Serbia**

**Silvia Amicone** (Institute of Archaeology University College London, London), **Patrick Quinn** (Institute of Archaeology University College London, London), **Miljana Radivojević** (Institute of Archaeology University College London, London), **Thilo Rehren** (UCL Qatar, Hamad bin Khalifa University Doha, Ar-Rayyan)

The Serbian Neolithic/Chalcolithic site of Pločnik (c. 5200-4650 BC) has yielded hundreds of thousands of pottery sherds along with some of the earliest known copper metal artefacts. The rich material culture of Pločnik holds significant poten-

tial for the study of Vinča pottery technology and standardization during the transition into the metal age. Standardization and specialization in pottery manufacture can be addressed in numerous ways, including direct archaeological evidence for production and data on shape, decoration or artefact dimensions. Given the lack of sure production evidence for Vinča culture ceramics and the fragmentary nature of the pottery at Pločnik, we are investigating these topics through the perspective of pottery technology, by looking in detail at the ways in which the abundant Neolithic/Chalcolithic ceramic artefacts at the site were made. We are exploring the varying degrees of technological standardization that can be observed in the different phases of the site and their relationships to vessel typology and possible function. Our study covers the full spectrum of Vinča pottery at Pločnik. We are applying an integrated compositional and technological approach that includes thin section petrography, X-Ray fluorescence analysis, X-Ray diffraction and scanning electron microscopy.

### **Pottery Standardization and Specialization in the Late Neolithic Okolište: A Case Study from Central Bosnia**

**Robert Hofmann** (Kiel University, Kiel)

In a Bosnian-German cooperation extensive archaeological field work were carried out in the Neolithic settlement mound Okolište and other prehistoric sites in a micro-region near the town Visoko in Central Bosnia. Among other things, detailed data on quantity, technology, morphology, and decoration of pottery were collected. Building upon these data, issues related to the organization and the degree of specialization in pottery production can be discussed for a late Neolithic society of Central Bosnia. An integrated approach was applied that includes extrapolations of quantities of the annual vessel production in relation to demographic estimations. Metrical, technological, morphological, and stylistic variability of the pottery assemblages serve as additional proxies to discuss the degree of craft specialization. There is currently little evidence for marked specialization in pottery production beyond the level of households. In contrast, in respect of the frequency of other find categories differences between house inventories on the one hand and between settlements on the other hand are visible. The differences within the settlement we understand as result of socio-economic differentiation processes between households or related groups of them. In contrast, the differences between settlements within the micro-region indicate possibly the onset of communal specializations that perhaps not only concerned non-subsistence goods.

### **Rock Art as Craft Production: Time, Experts, and Social Life in North Central Chile**

**Andres Troncoso** (Department of Anthropology Universidad de Chile, Santiago), **Francisco Vergara** (Area-C Consulting, Santiago), **Felipe Armstrong** (University College London, London)

Through the evaluation of the time invested in rock art production and the technical requirements of its production, we discuss the presence of specialists or experts and the possible social implications within the social reproduction of the prehistoric communities. The analysis is taken from the research we have conducted as part of the FONDECYT project 1110125. Some of the results show the presence of expert producers in the case of a specific motif: faces associated to highly relevant people to the political and identity dynamics of these communities.

### **Proposed Model of Ceramic Production within Vučedol Society: A Case Study from Eastern Croatia**

**Ina Miloglav** (Department of Archaeology, Faculty of Humanities and Social Sciences, University of Zagreb, Zagreb)

The paper presents an overview of the results of the standardization of ceramic material and the parameters by which the specialization and organization of production, placed within the socio-economic framework of a particular community, can be confirmed. The conditioning of the standardization, as well as various societal needs leading to the organization of production, is viewed in the wider context of the functioning of the Vučedol community at the very end of the Eneolithic. On the basis of standardization hypothesis, by using the coefficient of variation, ceramic assemblages from two sites of the Vučedol culture in eastern Croatia were tested. The results have shown a certain level of standardization in a certain type of vessel, which was most commonly used in everyday life. These results are corroborated by the results of mineralogical-petrographical analyses and XRD method and by the typology of ceramic vessels. Based on the results, the proposed model of ceramic production within Vučedol society is defined. It assumes organization at the level of household industry, and it relates to production that is still taking place within the household, but most of which is oriented towards needs existing outside the household, i.e. to trade and exchange beyond household consumption.

### **Calcite Vessel Production in Shahr-i Sokhta: New Insights on a Specialized Industry in the Prehistoric Iran**

**Simona Boccuti** (National Research Council-CNR, Rome), **Andrea Squitieri** (University College London-UCL, London)

This paper intends to offer new insights on the calcite vessel industry which developed in the proto-historic site of Shahr-i Sokhta (eastern Iran) between 3200 and 1800 BCE, presenting the results of GIS, SEM-EDS, and AFM analyses. This site has yielded a large number of finished, unfinished and slightly worked pieces which have permitted to reconstruct the manufacture process of calcite vessels (Ciarla 1981). However, many questions still remain to be answered. These concern the identification of the tools employed, the specialization degree of this industry, and the social characterization of producers/

consumers. Such questions will be tackled by means of SEM-EDS and AFM analyses to produce high-resolution images of tool marks; comparative analyses of other calcite industries; and an evaluation of consumption patterns by means of GIS analyses. This study will contribute to a better understanding of the economic and social development of Shahr-i Sokhta community. This study is made possible thanks to a collaboration with the Museum of Oriental Art “G. Tucci” in Rome and the Italian CNR. It is part of a larger project of revaluation of Shahr-i Sokhta materials found by the Italian mission between 1967-1978 under the direction of Prof. M. Tosi (IsMEO).

### **Tell ‘Arqa Bronze Age Lithics in Social Contextualization (Akkar Plain, North Lebanon)**

**Florine Marchand** (Université Libre de Bruxelles, Brussels)

Tell ‘Arqa is located in Northern Lebanon, in the southern part of the Akkar Plain on the Mediterranean coast, and excavated since 1992 by Dr. J.-P. Thalmann. Noted for its architecture and pottery of the Bronze Age, this site also has a rich lithic industry with ca. 3000 flint artifacts (tools and debitage). In this paper, we would like to highlight that, during the Early Bronze Age IV (2500-2000 cal. BC), lithic blanks are especially focused on standardized macro-blades made of both local and exogenous flint. The traceological analysis show that these types of glossed blades are generally dedicated to agricultural tasks. It is obvious that the macro-blades from ‘Arqa are used predominantly as sickles, not as tribulum, but we also know that other tasks were performed like butchering, the working of bone, wood, ceramic etc. The lithic industry, but also the pottery, demonstrate the existence of a specialized craft within the main families or lineages of the most important town of North Lebanon, controlling the southern areas and sites of the Akkar Plain.

### **Who were They? Gender, Age, and Status of Bronze Age Smith (Sintashta Culture, Southern Trans-Urals)**

**Natalia Berseneva** (Institute of History and Archaeology, Ural Branch of Russian Academy of Sciences, Ekaterinburg)

This study concerns the burials of the Sintashta cultural groups. The sites of the Sintashta culture are currently dated from the 21st to the 18th centuries BC. The settlements and cemeteries of the Sintashta type are concentrated in the northern steppe of the South Urals. The Sintashta economy was based on livestock-breeding, and there were numerous traces of metalworking at the settlements and at the cemeteries. Grave goods usually included many categories: weaponry, horse trappings (shield-like cheek-pieces), clothing attachments and ornaments, and tools and objects linked to metallurgy. The main purpose of this study is to try to define the relation between personal and possibly professional identity of the buried and associated bronze and metallurgy-linked objects. The latest are presumably represented by tools for ore smelting: stone hammers, stone smelting forms, ceramic nozzles and pieces of ore. Cross-culturally, metallurgy was very important and possibly sacred activity in Bronze Age societies over the world. Having archaeological sources, we can obtain some evidences about gender (male/female), age (adult/sub-adult) and vertical status of craftsmen and to reconstruct the social network around Bronze Age metallurgy in Southern Trans-Urals area.

### **Exploring Craftsmanship through Potter’s Marks in Protopalatial Mesara (Crete)**

**Giorgia Baldacci** (University of Venice, Venice)

The full study of all the protopalatial pottery (MM IB-MM IIB, XIX-XVIII cent. BC) recovered at the site of Aghia Triada (Crete) has led to identify a group of vases which present, on their bottom, a potter’s mark. These marks, in the form of low reliefs left by the upper, removable part of the potter’s wheel (the so-called bat), are present only on a restricted number of open and closed shapes, made in a semicoarse fabric and highly standardized under a typological, technological and decorative point of view. The same kind of marks, sometimes bearing motifs very close to those found at Aghia Triada, appear also on similar vessels found in the nearby palatial site of Phaistos and at Kommòs. The aim of the present paper is to gain information about the artisans’ status, the organization of their work and the relation between craftsmen and palatial authority in a regional frame. In order to do that, the issue of the potter’s marks in the SW protopalatial Mesara will be explored, not only considering the marks per se, but also carrying out a technological, typological and contextual analysis of the vessels involved.

### **Assessing Standardization in Maltese Prehistoric Pottery Production: The Case of Borg in Nadur Pottery**

**Valentina Copat** (University of Rome Sapienza, Rome)

It is widely recognized that the degree of standardization in pottery productions has a high informative potential as regards the socio-economic organization of prehistoric societies. In fact, the specific degree of standardization allows us to figure out as to whether the potters were involved in a full time production or whether pottery production was organized on a domestic level. This paper is aimed to investigate the degree of standardization in the Maltese Late Bronze Age pottery production (Borg in Nadur phase). Excavations at the megalithic sanctuary of Tas-Silg (Malta) have provided us with a numerically significant quantity of pottery that is anchored to a reliable stratigraphic sequence, from the Late Neolithic to the Bronze age. This study takes into consideration, with a global approach, both morphological and stylistic variability, on the ground of a statistically significant number of cases. In fact, standardization of vessel shapes could non always correspond



to standardization of stylistic features (such as the decorative ones). Therefore, the comparison between the two variables may help us in better understanding the patterns of production of Maltese Late Bronze Age pottery and the social organization of these communities that reused such as monumental structures.

### **Skilled Production and Specialists – What are We Talking about?**

**Daniel Sahlen** (Stockholm University, Stockholm)

Specialised production is often viewed as the opposite scale of domestic production. Specialised production is in this view defined as the skilled production of high value objects and linked to a stratified centralised society and domestic production as the day-to-day production of objects used in a household/everyday context. This is a socio-economic definition and does not see the craftworking in its context. It is here argued that it is possible to define two types of specialisation: socio-economic specialisation and material specialisation. The latter implies the presence of a person with craft skill, a specialist, but not necessarily a socio-economic specialised context. The casting of copper alloys and other non-ferrous metals are often viewed as a specialised activity indicating the presence of a stratified/centralised society, but contextual studies are rare. The goal with this presentation is to review the material evidence of casting in prehistoric contexts and discuss what this can tell us about the presence of specialisation and specialists. I will look at casting production as an activity generally, but use examples from Britain and Scandinavia to give examples of production contexts.

### **Made not by Everybody and not for Everybody. The Case of Early Iron Age Face Urns from Southern Baltic Coast**

**Katarzyna Ślusarska** (University of Gdansk, Gdansk)

In the beginning of the Iron Age on the Southern part of Baltic Coast a new fashion for urns has appeared: an anthropomorphic one, with imitation of face details on. This phenomenon is quite limited in time and space. Though similar objects appeared also on vast area from Jutland peninsula to Vistula River, and in southern parts of Scandinavia, most of them came from Pomerania and adjacent areas of Polish lowland. The fashion for face urns lasted in the funerary rite of so called Pomeranian Culture no longer than 300 years, what can be seen as a quite short period comparing to almost 1000-year tradition of cremation in Bronze Age. These objects were only one of several types of urns used at that time and among these societies, and were not the most frequent form of urn. Most of face urns shows far reaching standardisation in shapes and sizes, but they differ apparently from other funerary pottery in terms of techniques, material and ornaments. The main aim of the paper is to discuss the possibility of existence craft specialisation in production of face urns and possibility of identification workshops or migratory craftsmen.

### **Technological Variability and Potter's Skill in Pottery Production in Southwestern Mallorca (Balear Islands, Spain) during the Late Iron Age (c. 500-50 BC)**

**Daniel Alberó Santacreu** (Universitat de les Illes Balears, Palma de Mallorca), **Aixa Vidal Piñeyro** (INAPL, Buenos Aires), **Jaume García Rosselló** (Universitat de les Illes Balears, Palma de Mallorca)

The identification of the potter's skill during the more recent phases of Balearic prehistory can be tackled by combining a number of methodological strategies aiming at analyzing the several aspects of the ceramic chaîne opératoire. It is particularly clear in the case of paste preparation, modelling techniques and symmetry, as well as the overall size and surface treatment of the final objects. The intertarian variability in this skill reflected in the technical features of the pottery may respond in a way to a diversification of learning contexts and knowledge transfer strategies, both of them related to important social transformations. Hence, the technical knowledge owned by each potter and its representation in certain features of the pottery should be considered contingent and be evaluated exclusively in the specific context defining that pottery-making situation. In this way, the study of technical skill should not be seen as a mere reflection of either a scarce or large technical knowledge or rather the existence of a specialized production but as a key element which defines the dynamics operating in a specific society.

### **Ironmongers and Warmongers – Compatible Specializations?**

**Staša Babić** (Department of Archaeology, Faculty of Philosophy, University of Belgrade, Belgrade)

The Bronze and Iron Age communities of continental Europe have often been described as predominantly warriors' societies, with corresponding lifestyles and deathstyles (cf. Treherne 1995), pointing to warrior's prowess as the main criterion in ascribing power to individuals. The existence of this specialized group requires a corresponding distribution of lesser social roles, expected to be organized according to the same set of socially accepted criteria. The contribution seeks to explore the archaeological traces of these other social identities inside a warrior society. The case study of the grave No. 9 from the necropolis at Trebenište near the lake of Ohrid in Macedonia (5th cent. BC) will be presented. This funerary record combines the elements of two disparate social roles: that of an empowered individual, epitomized in the golden funerary mask and imported bronze vessels, and that of an artisan – a blacksmith buried with iron pliers and spade. This



odd pairing raises the issue of the relationship between the social roles of warriors-leaders and artisans, their boundaries and differences, as well as similarities.

### **Glass-Making in La Tène Europe: From Specialized Technology to Social Production**

**Joëlle Rolland** (University of Paris 1 - Panthéon-Sorbonne - UMR 8215 Trajectoires, Paris)

Before the invention of glassblowing in the first century BC, Celtic glass workshops imported the raw glass from the East of Mediterranean. By the beginning of the third century BC, Celtic glass production was characterized by the development of a new artifact: a bracelets manufactured without any seam. Compared to beads, the shape and decors of the bracelets was highly standardized. A team combining archaeologists and glass-makers has been reconstructing the manufacturing process of these seamless glass bracelets. A team combining archaeologists and glass-makers has been reconstructing the manufacturing process of these mysterious seamless glass bracelets. The aims of the experiments are to define techniques, measure the time involved in manufacture, and evaluate the amount of training needed. The experiments have shown that these objects required considerable expertise from specialized craftsmen, who spent all or most of their time making ornaments. After a period of innovation (La Tène C 260-125 BC), simple yet undecorated rings were manufactured in increasing numbers in workshops (La Tène D 125-50 B.C). In this paper, we examine the evolution of the glass in the socio-political context of Europe at the end of the Iron Age.

### **The Beginnings of Early Egyptian Goldsmithing from the Perspective of Tell El-Farkha (Egypt)**

**Joanna Dębowska-Ludwin** (Institute of Archaeology, Jagiellonian University of Kraków, Kraków), **Karolina Rosińska-Balik** (Jagiellonian University of Krakow, Krakow), **Marcin Czarnowicz** (Jagiellonian University of Krakow, Krakow)

Golden objects were always symbols of wealth and special social/economic status. Even the smallest items cause excitement and deep interest, which induced – and still induce – people of all epochs to cherish the metal as a treasure. Golden objects were protected, hidden, offered to deceased, stolen and often processed, when the original items became worn out. That is why this type of discoveries belongs to very rare and exceptional events. The site of Tell el-Farkha, which is located in the Eastern Nile Delta, brought some interesting examples of such objects. They represent numerous categories: beads, pendants and figurines, and belong to various periods dating back to the 4th millennium BC, from the times of the Lower Egyptian culture (so-called Maadi-Buto complex) to the Early Dynastic. The finds give us a more detailed insight into some aspects of early Egyptian goldsmithing technologies, but also illustrate the beginnings of the craft, so highly specialized in later pharaonic history of the Egyptian state. The paper will present Polish discoveries of small golden objects at Tell el-Farkha, Egypt.

### **Specialization and Standardization – An Inevitable Interdependence? Some Reflections Concerning the Production of Viking Age Decorated Cast Metalwork**

**Birgit Maixner** (University of Oslo, Oslo)

The material culture of Viking Age Scandinavia is characterized by a mass production and wide distribution of standardized decorated cast bronze metalwork, which show a large series of identical products on the one hand, but also a wide range of quality between the series on the other hand. Investigations have traditionally been concentrated on the ornamentation and art-historical aspects, whereas the potential of this material concerning questions of the character and organization of the production has been largely neglected. The paper will present methodical approaches to identify traditions of workmanship and single workshops based on cast products. Taking tools like moulds and crucibles, and the presumed products of single workshops as a starting point, the degree of specialization of the craftsmen in question will be discussed. Furthermore, the extend of the distribution area regarding the quality of the products and power-political affairs will be considered against the background of Viking Age mobility and market-based demands.

## **POSTERS**

### **Standards in the Povolzhye Neo-Eneolithic**

**Aleksandr Vybornov** (Samara State Academy of Social Sciences and Humanities, Samara), **Irina Vassilieva** (Samara State Academy of Social Sciences and Humanities, Samara)

The standards in the material culture of traditional societies are determined by social relations and stable traditions. The pottery standardization was specified by many factors. The shapes of vessels reflect the way of life (nomadic or settled) and characteristics of fireplace appliances (flat- and round-bottomed vessels). One of the ornament functions consisted in transmission of information about human groups connection. Pottery traditions passed on from generation to generation are very conservative. In the comparison of Neolithic (5500 BC) and Eneolithic pottery (5000 BC) the change of shapes (in Neolithic – a flat-bottomed shape, in Eneolithic – a round-bottomed one) and change of ornament is observed (in Neolithic the ornament is scratched; in Eneolithic – traces of wattled materials). In Neolithic the silt with a natural clamshell impurity was used, and in Eneolithic – silty clay with crushed shells additive. The Neolithic industry is based on the standards of microlithoidal technique and geometric microliths. The standards are based on Mesolithic traditions. In Eneolithic the

transformation is observed. A new standardization is based on a large plate intense pressure technique and tools production from massive shears. The change of standards in technocomplexes depends on the system of factors.

### **Identification of Local vs. Non-Local Prehistoric Ceramics from Milena (Valle del Platani, Sicily) Using Non-Destructive pXRF**

**Robert H. Tykot** (University of South Florida, Tampa), **Andrea Vianello** (Oxford University, Oxford), **Carla Guzzone** (Soprintendenza ai Beni Culturali di Caltanissetta, Caltanissetta)

Milena, part of the Caltanissetta province in central Sicily, was particularly important in prehistoric times. In the Antiquarium Arturo Petix are large collections of Neolithic pottery, Bronze Age ceramics including Mycenaean-type wares, and Iron Age vessels, with continuity across these periods. During the Iron Age, Milena was at the heart of a region that saw the formation of some of the strongest autochthonous societies in Sicily. As part of an ongoing research project in Sicily, a large number of ceramics have been analyzed, attempting to distinguish local wares from imported ones as well as the development and standardization of ceramic technology in the region. Many of the vessels are unique and could not be tested destructively, so a portable XRF spectrometer was used to conduct all analyses within the museum. The volcanic origin of the Milena area and other parts of Sicily helps allowing elemental recognition of the particular local geology. We present preliminary results on a range of vases and idols from village and burial sites, confirming the fitness of the cost-effective and non-destructive analytical methodology employed. The early and broad range of imports detected assists in recognizing in full the socioeconomic importance of the Milena area.

### **Cucuteni Pottery Production, Consumption and Exchange in Eastern Romania: Insights from Compositional Analysis**

**Matau Florica** (Alexandru Ioan Cuza University of Iași, Iași)

In this study, we explore the relationship between the emergent complexity of the Cucuteni-Trypillia civilization (V-IVth millennia BC) and the specialization of their ceramic craft production as it is reflected by increasingly homogeneous products. This question has most often been addressed by typological analysis of sub-sets of larger ceramic assemblages consisting of intact vessels from idiosyncratic contexts. However, excavations often do not yield appropriate whole vessel sub-sets. In order to evaluate the changing context of the organization of ceramic production, we engage a robust methodological approach to the analysis of ceramic sherd assemblages, rather than intact vessels, rooted in a combination of analytical techniques. X-ray fluorescence was used to determine the chemical composition of a large sample (168 specimens) of pottery and clay samples from sites across the Eastern region of present-day Romania has led to the identification of different compositional groups whose differential distribution implies shifts in resource selection. X-ray diffraction and Fourier-transform spectroscopy analysis were used to explore the firing temperature and the effects of distinctive tempering agents on the mineralogical transformations due to different firing parameters. We integrate insights from these diverse archaeometrical analysis in order to understand the degree of product standardization and craft specialization.

### **Bone Tools: Standard Component of Neolithic Assemblage at Balkans – Case Study from Aşağı Pınar**

**Hazal Azeri** (Mimar Sinan Fine Arts University, Department of Archaeology, Istanbul)

With the beginning of the neolithic period, we can observe an obvious increase in bone tool diversity and its area of utilization. Considering that kind of variety, it can be stated that there is a significant standardization for almost every type of tool. This standardization, which exists in the entire area, where the neolithic way of life has expanded, has to be related with the similarity of the production and the needs. Aşağı Pınar, located in Eastern Thrace, is one the buffer zones between the Balkans and Anatolia from the end of the 7th to the end of the 6th millennium. The site continuously reflects the whole process from the period the neolithic way of life emerged in the region, to the advanced phase where the entire order fell into place. Due to this its location and chronological continuity allows us to observe the development of bone tools in respect of a wide range of area and time, and enables us to make comparisons. Based on the findings of the Aşağı Pınar, the bone tools will be discussed in Balkans, in a specific period of time.

### **Social Context of the Pottery Standardization in Lusatian Culture (Late Bronze Age/Early Iron Age)**

**Monika Elečková** (Institute of Prehistory, Adam Mickiewicz University, Poznań)

Pottery is an extremely valuable source of information about the past. Without territorial limitation but with extremely long tradition, pottery is a valuable source for reflection on the social organization and the associated organization of the workshop production. Late Bronze Age and Early Iron Age in Poland is plentiful and interesting period, characterized by an unprecedented number of ceramic finds. This period is on the Polish lands associated with the Urnfield Culture, represented by so-called Lusatian Culture. In Late Bronze Age and Early Iron Age we are dealing with advanced standardization of pottery production. Vessels with similar forms, as well as the technical features, were produced on a distant lands and traditionalism in the selection of forms and techniques are quite surprising. Despite long time occurrence of the same cultural group in the lands of today's Poland, covering a period of almost 900 years (from 1300 BC to 400 BC), the variability of

forms is relatively small. The question I would like to ask is: what is the reason of such far-reaching unification of pottery? In this poster I would like to pay attention to the social conditions that may have an impact on this phenomenon. Is the Late Bronze Age a period when we can talk about the rise of profession - potter and specialization of production? Was that occupation reserved only for women, as some researchers suggest? In that case women's role could be associated with migration, marriages and spreading the traditions of pottery production to a wider area. Or maybe the unification of production has strictly economic background? I would like to present and discuss these problems as a social context of the pottery standardization.



## **T03S005 - NOBILITY VERSUS ARTISANS II. CRAFTING DURING THE BRONZE AND THE IRON AGES IN EUROPE AND THE MEDITERRANEAN: THE ARCHAEOLOGISTS TROWEL AND BRAIN**

**Organizers:** Ann Brysbaert (University of Leiden, Leiden), Alexis Gorgues (University of Bordeaux III, Pessac), Beatriz Marín-Aguilera (Complutense University of Madrid, Madrid)

Recently, the dichotomy 'elites-artisans/labour' with their social and technical interactions in the context of the so-called hierarchic societies of the European Bronze and Iron Ages was reconsidered. The often-stated idea that elites had total control of all craft production and interaction and thus remained removed from the technical sphere altogether, have rightly been challenged in view of re-examining both archaeological and limited textual evidence from 2nd-1st millennium BC Europe. Without wanting to abandon theoretical models, we emphasize and invite papers on thoroughly contextual-driven approaches. "Context" here is understood as (1) the archaeological-stratigraphic context and (2) the sociological context of the researcher. Choices made and filters used in both affect which and how finds are found and interpreted. Are our methods, interpretation frameworks and concepts adapted to context-specific investigations so that we can pick up the fine nuances between e.g. domestic versus workshop activities, and are we in positions to recognise technical transfers and innovative interactions of past people with each other and their materials during their day-to-day activities? Papers, reflective of methodological approaches and choices, and interpretative papers based on contextual analyzes that allow the rich mosaic of technological activities and social practices to emerge from their data, are welcome.

### **ORAL PRESENTATIONS**

#### **Revisiting Theories and Interpretive Models Concerning Bronze and Iron Ages Levantine Craft Production. The Key-Issue of Workshop**

**Silvana Di Paolo** (ISMA-Istituto di Studi sul Mediterraneo antico - Italian National Council of Research, Rome)

Within the last decades, the study of craft production has emerged as one of the most important, although problematic, issues in archaeological research. There are many ways in which the study of craft production has been dealt with (association with the development of complex societies; relationship between producers and consumers; social meaning of objects, etc.). In particular, organization, role, location, and meaning of workshops have been examined through a variety of interpretive models adopted by scholars. This contribution surveys the different hypotheses that have been formulated both in archaeology and art history: this double focus allows for moving between different scales of analysis ranging from the concept of household production to regionally-based production.

#### **Locating Agency in the Manufacture of Central European and Balkan Bronze Age Weapons: A Metallographic Perspective**

**Barry Molloy** (University College Dublin, Dublin)

We often speak of agency when considering past technological practices, though specifically locating and characterising this beyond theoretical formulations and paradigmatic datasets often proves difficult. The concept of communities of practice has proven a useful vehicle for considering how such know-how can be shared through common frames of reference, particularly when this involves creating material culture. Recent work has advocated a partial inversion of this way of thinking by promoting analyses of communities of objects and things as a complementary perspective. This paper will look at the traditions of manufacturing bronze swords and spears in the Bronze Age Balkans in order to explore where and how we situate agency in technological discourses. Using metallographic samples taken from 105 artefacts, I propose that distinct traditions of manufacture can sometimes be identified within metal hoards. Supported by compositional analyses of the bronzes, this leads us to question degrees of mobility of objects and smiths. To what extent was design a function of regional traditions of form and general technological savoir faire, and how much was each local dataset the product of smaller-scale networks of know-how? In turn can we ask how object relations reflect the social relations of their makers?

## **Contextualizing Bronze Crafting in Late Bronze Age Scandinavia: From Levels of Production towards a Spectrum of Social Arenas**

**Anna Sörman** (Dept. of Archaeology and Classical Studies, Stockholm University, Stockholm)

Over the last decade, fresh perspectives have furthered our knowledge about the social character of bronze technology, especially in relation to its ritual and symbolic dimensions. Despite these new insights, our understanding of how bronze crafting was organized in society is still mostly dominated by the generalizing dichotomy of “domestic/local” versus “centralized/regional” production. In line with these frameworks, bronze casting sites have usually been classified through predefined concepts rather than tested in relation to them. I argue that this interpretative model has operated at the expense of the variety evident in the material, leaving the issue of differences in production heavily unexplored. In this paper I set out to explore the social dimensions of bronze technology beyond these dichotomies, thereby bringing into question the fundamental analytic categories traditionally used for making sense of these sites, especially when it comes to the expectations and assumptions inherent in the idea of the “workshop” in Bronze Age research discourse. Drawing on results from a detailed, comparative and contextual study of individual sites, I will discuss how production can be seen as tied to different social spheres, contexts and events and in what ways such a perspective may complement or revitalise current understandings.

## **A Fifth century BC Deposit from the Pit-Sanctuary of Malko Tranovo in the Thracian Lowlands (South Bulgaria)**

**Milena Tonkova** (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences, Sofia)

The aim of the study is to discuss the deposits of pieces of jewellery and craftsman’s tools in the characteristic for Thrace pit-sanctuaries of the Late Iron Age. Different aspects of the interpretation of these depots have been also looked for. The presented report will be focused on one of the richest finds coming from the Thracian sanctuary at the village of Malko Tranovo, Chirpan municipality. A deposit of 113 pieces – adornments, craftsmen’s tools, raw materials and scrap of imported bronze vessels as well as finished articles and raw materials of bone were found there in a fifth century pit. Several issues are treated in the study of this deposit: its character – a presumable ex-voto of a craftsman, most likely an itinerant one, either Greek or local; and its origin – some of the finds are undoubtedly Greek, but others are local production. The bearers of the offerings in this sanctuary were noblemen or craftsmen and traders, whose existence and social status could be judged by the presence of highly artistic and luxurious objects (jewellery, coins, imported Greek pottery and bronze vessels, transport amphorae, etc.). The deposit from Malko Tranovo provides also information about the trade with products of bronze in the Aegean area as well as the presence of itinerant Greek traders in Thrace during the fifth century BC.

## **Romanization is Coming! The Appearance of the Potter Working Class in Iberia at the End of the II Iron Age**

**Juan Jesús Padilla Fernández** (Complutense University of Madrid, Madrid)

The concept of Romanization, and its subsequent consequences, has been the subject of many studies throughout the history of our discipline. Unfortunately, there has been a constant tendency to emphasise the study of the conqueror’s side, thus avoiding necessary in-depth studies on the changes suffered by those who were defeated. The effective arrival of new powers has a direct influence on the economy, the society and the way of conceiving the world, a world that became bigger and where the local entities started fading in favour of a Roman model. Understanding the material culture as a reflection of the society that produced it and considering pottery as an archaeological source of information, we are able to ponder over the transformation suffered by the handcrafters in charge of manufacturing these objects. Furthermore, going beyond a simple interpretation of the objects and their physical aspects, allows a deeper insight on the social change experienced by a trade that was increasingly acquiring an industrial aspect.

## **Hoards and Cult: A Chance to Re-read the Metallic Deposits**

**Ilaria Tirloni** (Université de Rennes 2-Haute Bretagne, Rennes)

Until recently, archaeological literature has tended to view metallic deposits, known as hoards, in a peculiar context, whose first interpretation was “craftsman treasure”. This paper aims to propose an interpretative key which leads to the ritual sphere, stressing the ritual feature of the deposits. This method has been elaborated on comparing several aspects, such as the material composition, objects typology and their quantity and conditions, but especially the archaeological context. The research has focused on the archaeological findings in Southern Italy between the Final Bronze Age and the Early Iron Age: through the study of several contexts, such as Rocavecchia (region of Puglia), Bitalemi (Sicily), Francavilla Marittima (Calabria), we will discuss the cult scenario connecting the *Dark Ages*.

### Pottery and Domanial Economy in the Iberian Iron Age: The Mas de Moreno (Foz-Calanda, Teruel) Case

**Alexis Gorgues** (University of Bordeaux III, Pessac), **Jose Antonio Benavente** (Consortio Patrimonio Ibérico de Aragón, Teruel), **Nicolas Frèrebeau** (Université de Bordeaux-Montaigne; 2, Bordeaux), **Charlotte Sacilotto** (Université de Bordeaux-Montaigne; 2, Bordeaux), **Florent Comte** (Université de Bordeaux-Montaigne; 2, Bordeaux), **Alexandre Bertaud** (Université de Bordeaux-Montaigne; 2, Bordeaux)

Since 2005, a Franco-Spanish team investigates a potter workshop located in the Guadalopillo Valley, a few kilometers south from the little Aragonese town of Alcañiz (Teruel province). This workshop was first identified by M. Martínez at the beginning of the 1980's, when her team from Teruel university excavated a kiln named by us "kiln 1". Current fieldwork brought to light six more kilns, as well as a clay treatment area, pottery wheel bases, pigment traces, and, obviously, plenty of pots sherds. The investigation focuses in technology as well as on socio-economic issues. Stratigraphic analysis was used to determine what was the rythm of the activity. The chaîne opératoire is considered from an archaeological as well as an archaeometrical point of view. The excavation of very well conserved kilns was recorded by 3D scan, and their study showed that they were of very advanced technology. Archaeological evidence points toward a potter's effort on quality, rather than on quantity. Epigraphy in Iberian writing and paste analysis allow to investigate patterns of distribution, as well as the social context of production. We would like here to present this innovative investigation whose results shake some of our preconceived ideas.

### Smiths: Is High Technicality the Way to Reach an Elite Status?

**Anne Filippini** (TRACES - UMR CNRS 5608, Toulouse)

By this presentation we want to give new elements to approach the social status of craftsmen during the Vth century BC in the West Hallstatt Area. Our work is based on concrete examples from ancient Gaul, namely two recent archaeological finds: Bourges (Cher-France) and Lyon (Rhône-France). These most ancient metallurgical contexts have been apprehended with multidisciplinary studies. We had first to measure the extent of the craft production as well as the smithy activity in particular. We focus our work on iron by characterizing the smithy wastes (slags, metal scraps, waste material, rough items) and iron productions that could be found on these sites. It was also important to know at the same time the artifacts and the nature of their constitutive metal, the ways of supplying the workshops with iron and to identify different productions. We had to point out the highly specific know-how of the smiths, and the internal organization of the workshops. It gave the opportunity to reveal the value of iron and all the social implications of metal productions. All these results lead to some new social and economical interpretations on the craftsmen's status and on their settlements.



### T03S006 - INTERPRETING THE CHANGE - ADOPTION OF STONE AND BRICK IN URBAN SETTINGS

**Organizers: Liisa Seppänen** (Department of Archaeology, University of Turku, Turku), **Andrea Arrighetti** (Université libre de Bruxelles, Bruxelles), **Paolo Charruadas** (Building Archaeology Laboratory Historical Sciences and Cultural Heritage Department University of Siena, Siena)

The aim of the session is to discuss the changes in building materials and construction practices in urban surroundings with the main focus on the medieval and post-medieval towns of Europe. The adoption and use of new materials was a significant process which included a variety of issues discussed in urban archaeology and history, like the availability and supply of raw-materials, cultural contacts, trade, economical growth, social and professional diversity, social ambition, material culture as well as urban life-style. Although the process has been studied in urban settings, it also had an impact on the surrounding countryside and connections between town and countryside, which deserves more attention. We are inviting researchers working on this topic to discuss the factors behind this process, its chronology and adoption, and variety of consequences in different areas. The papers can focus either on large-scale perspectives in time or certain aspects related to the process detectable in archaeological and historical source material. Furthermore, we welcome speakers addressing the theories and methods of analyzing this change from different perspectives.

### ORAL PRESENTATIONS

#### Building Materials in the 11th century Padova: Using Old Brick and Stone Spolia as Elite Identity

**Alexandra Chavarria Arnau** (University of Padova, Padova), **Gian Pietro Brogiolo** (University of Padova, Padova), **Gilberto Artioli** (University of Padova, Padova), **Sonia Schivo** (University of Padova, Padova), **Michele Secco** (University of Padova, Padova), **Anna Addis** (University of Padova, Padova)

After a period of slow decadence (4<sup>th</sup> – 6<sup>th</sup> centuries) aggravated by institutional crisis (7<sup>th</sup> – 8<sup>th</sup> centuries) the city of Padova reemerges in the 9<sup>th</sup> century thanks to the bishop's return to the city. This religious and mostly political event can be traced



in the evolution of public and private architecture. The common feature in these constructions is the exclusive use of spolia from Roman times. A detailed analysis of the building materials shows selective and hierarchical choices: Roman bricks that were still in perfect condition were used for the churches, whereas in private buildings “second quality” bricks were employed. The use of huge blocks of local trachite in the foundations and the low walls of churches and towers is also interesting. The combination of the archaeological analysis with textual references offers a sociopolitical explanation for this use. A more complete study of these materials and the archaeometric analysis of the mortars can increase our knowledge about the workshops, the technologies that were being used, and the different construction stages.

### **The Romanesque Churches of Sardinia (Italy): Digital Documentation and Investigation on Their Construction Materials and Architectonic Aspects**

**Stefano Columbu** (University of Cagliari, Cagliari), **Giorgio Verdiani** (Florence University, Florence)

The Sardinia Island is in the core area of the Mediterranean Sea. Its position has made it the crossing point of many cultural and political events, but at the same time its isolation has favoured the manifestation of specific and unique Cultural Heritage phenomena. The network of the Romanesque churches disseminated all around this island clearly shows how an architectural language can be declined in its architectonic aspects. On the bases of different architectural characteristics and petrophysical features of their lithology, 18 significant churches have been chosen from the different medieval geographical-political areas of the Sardinia “Giudicati”. Each of these were surveyed with the following methods: photography, 3D Laser Scanner for the whole interior and exterior parts, 3D photogrammetry of a selected set of stone surface samples, direct sampling of representative rocks for geochemical and petrophysical analysis. All data were then treated and analysed to deepen the knowledge about the most meaningful aspects of different construction techniques and use of materials, provenance of raw materials, stone and structure alterations. As the result, a base was created to read common behaviours, design choices, recursive constructive solutions, and the “models” guiding the ancient intentions. This contribution will present the progress state of this research and its results.

### **The Building Materials in Sesto Fiorentino from the Late Middle Age to the Early Modern Age**

**Andrea Arrighetti** (Université libre de Bruxelles, Bruxelles), **Fabio Fratini** (University of Siena, Siena)

Sesto Fiorentino is a municipality located in the current outskirts of Florence, an area that was configured as one of the most densely populated of the Florentine countryside in the Middle Ages. Archaeological investigations carried out in 2010 showed that the area was characterized by at least 150 buildings in the 15<sup>th</sup> century; a good percentage of these structures were small settlements situated on the plain, sometimes accompanied by large Architectural Complex blocks built on the middle hill. The stratigraphical interpretation of the material structures of the buildings offered the opportunity to outline the history of the architecture of the entire area, with particular reference to the determination of the evolution of the construction systems from the 12th to the 15th century. Within this investigation, the integration between the archaeological data, historical sources and archeometric analysis has led us to define some “Chrono - Typologies” of the building materials between the Middle Ages and Early Modern Age. The integration of these elements to the geological characteristics of the area and local historical events showed the reasons that led people to use specific materials or modify their employment during the time. Interestingly, these “Chrono – Typologies” of materials are significantly different, with a few exceptions, compared with those in the neighboring city of Florence.

### **High Temperature Processes in a Dominican Environment**

**Anna Ihr** (University of Gothenburg, Gothenburg)

The 13th century in southern Scandinavia saw a radical change. Not only the building materials altered but also the way of construction as well as the social formation within the workers transformed. Brick as a building material was introduced in Scandinavia during the late 12th – early 13th century, more or less contemporary with the establishment of Mendicant Orders. A possible connection between these events was that the Mendicant Orders brought the knowledge of baking brick to Scandinavia. With construction in brick, lime mortar and plaster — other high temperature products of this period — are needed. Earlier building traditions in wood as well as in masonry survived; however, the brick revolution was a fact. The Dominican Convent in Lödöse, Sweden, not only had the knowledge of the production of these high temperature materials, but also on the making of glass. Hence, the high temperature production centered in solid workshops, and replaced earlier itinerant craftsmen.

### **Beyond the Soil. Medieval Brick Architecture in Flanders Reconsidered in Its Architectural Historical Context**

**Vincent Debonne** (Catholic University of Leuven, Leuven)

While one cannot deny that the scarcity of local building stones in Flanders prompted the introduction of brick in the 13th century, mere pedologic determinism does not suffice to explain why brick came into use. This paper aims to shed light



on the 'active' choices of patrons and builders in medieval Flanders for employing brick in their architectural projects. The introduction of brick in medieval Flanders was coupled with the application of new building techniques, within new architectural ambitions. In the city of Bruges, which in the 13th century underwent explosive demographic growth, brick came into use as rivalry between the main urban parishes increased. The use of brick and associated building techniques enabled the realisation of audacious architecture, which reflects the claims of supposed primacy of one parish church over the other. However, brick architecture in medieval Flanders was not limited to the urban environment. As the remaining wastelands of Flanders were cleared in the 13th century, parish churches in brick were built in the newly formed villages. In this region without a substantial architectural tradition, brick architecture was introduced as a new way of building, on par with what was being built in the cities at that time.

### **Stadsluft Macht Frei – Towns and Incorporation of Brick and Stone into Building Culture**

**Joakim Thomasson** (Lund University, Lund)

The German saying that town air makes you free meant that people became liberated from serfdom by staying in towns. However, the saying may also be used to describe that towns served as a platform for the emancipation of artisans. On principle, belonging to a town was built upon citizenship (for those who were recognised as such), in comparison to the countryside where people were subordinate to a feudal lord. The southern Baltic area was mainly urbanised between the 13th and the 15th centuries. Stone and brick were generally first used in ecclesiastical buildings and castles. Thereafter they gradually became used in the domestic architecture; both as solid stone-brick structures such as the typical stepped-gable houses and as materials in timber framed constructions. In the presentation, it is argued that the development of domestic architecture is related to the network of actors involved in the building trade and the growing importance of houses as symbolic assets. The establishment of guilds enabled artisans involved in the building craft to gain relative independence and continuity, to master infrastructure, knowledge, skills and costs.

### **Change is not a Single Thing – Causes and Consequences of Adoption of New Building Materials in Medieval and Post-Medieval Turku (Finland)**

**Liisa Seppänen** (University of Turku, Turku)

Change is a time- as well as culture-bound phenomenon, which needs to be reflected in its own context. In Finland, the changes connected with construction activities in the Middle Ages and Early Modern period are the most detectable in Turku, which is the oldest town of Finland and has been a target for many excavations. The first appearance of masonry houses in the 14th century is generally combined with German influence and Hanseatic building tradition. Cultural contacts and immigration catalyzed the change, but the adoption of new materials was closely connected with practical reasons and many motives of the constructor as well as the general circumstances in the community. In Turku, the adoption of new building materials seems to relate with other changes in construction practices and with certain events detectable also in historical sources. The paper sums up the promoters for change in the building materials and discusses the circumstances and consequences related to this matter with the town of Turku in its focus. The archaeological evidence from the town area, however, is neither fully extensive nor always exactly datable, which calls for comparative discussion upon the matter.

### **Changes and Stability in Building Culture**

**Gunilla Gardelin** (Kulturen / Museum of Cultural History, Lund)

The construction of worldly and sacred building contains both similarities and differences. The disparity in the choice of building technique can be followed in time and space. There are large regional differences, which can be explained on the basis of several factors like access to building material, knowledge, tradition, ideas, function, economy, climate etc. The availability to building material also depended on the ownership of the resources and the social rank of the builder. The building technique therefore changes depending on many factors. Different techniques have succeeded each other but have also been used in parallel during longer or shorter periods. With a tradition of archaeological and building historical activity at the Kulturen museum in Lund, a large amount of knowledge about the building culture of the town has been gathered. This paper is addressed to the question how different factors have influenced the building culture of the town in relation with contemporary villages. The focus will be on some clear breaking points with notable changes in the building culture or characterized with stability and unwillingness to make changes.

### **Stone and Brick as the Innovations in the Development of Prague**

**Josef Matiašek** (Institute of Archaeology of Academy of Science of the Czech Republic, Prague)

The historical capital of Bohemia, Prague (Czech Republic) can be seen like the mediator of development for a wider region. The early medieval agglomeration of buildings made from wood and earth was transformed to the modern city. This process culminated during the 14th century. The next qualitative changes connected with new foreign impulses came during the early modern period. The stone architecture, which was at first connected with building of sacral monuments, palaces and

fortifications, became ordinary for the citizens of Prague during the High Middle Ages. Brick architecture is less typical for medieval Prague. At first, it is connected with royal or ecclesiastical buildings. Because of the easy availability of raw materials in the vicinity of the city, the stone remained the main building material during the early modern period. However, the use of brick was not unusual. Changes in the use of building materials in Prague and in the rest of Bohemia were dependent on the developments in Western European countries. It can be linked to the periods of social stability and prosperity, and especially to the time period when Prague became the residential city of the ruler of the Holy Roman Empire and his court.

### **Medieval Mysteries. Warsaw (Mazovia) – The Beginnings of the Brick Architecture on the Fringes of Eastern Europe**

**Włodzimierz Pela** (Historical Museum of Warsaw, Warsaw)

In this paper, the early history of Warsaw is discussed with special attention to the dates, causes and character of the changes. The urban development of Warsaw is also compared with a few other Mazovian towns. On the eastern peripheries of Medieval Europe, urbanization took a different course from that in the centre. Mazovia was dominated by timber architecture until quite late. The establishment of the Old Town of Warsaw in a previously empty area at rather a late date – at the turn of the 13th and 14th centuries – is intriguing. Probably, the town was initially defended with an earthen rampart, which was replaced by a brick wall built in stages in the 14th century. The first buildings of the town were made of timber, but in the early 15th century the first Gothic brick houses were constructed and by the 16th century there were 150 of them (70% of all the buildings). The collegiate church was built at the turn of the 14th and 15th centuries. The duke's stronghold located next to the town and was later rebuilt as a castle in brick. Despite decades of intensive research, the history of the town remains unsolved.

### **From Timber Framed Houses to Stone and Brick Constructions in the Southern Low Countries: Environment, Urban Typology and Technical Knowledge**

**Paulo Charruadas** (Université Libre de Bruxelles, Brussels), **Philippe Sosnowska** (Université Libre de Bruxelles, Brussels)

The study of the so-called “petrification process”, which has to be understood as the implementation of stone and brick instead of timber, is an important issue for the general historical and archaeological research in Belgium (roughly the former Southern Low Countries). In a fragmented manner, several archaeological studies were conducted on various urban sites (Ghent, Liège, Brussels, Namur) or on larger areas, such as the Mosan Valley. Until now, no synthesis has been attempted in order to bring together all available local information and to compare specific situations. The questions discussed in this lecture will be related to three topics and their relative impact on the petrification process: (1) the forest environment (timber resource availability, i.e. near or more distant woodlands, and trade networks); (2) the cities' characteristics (size, economic development, and political structures); (3) the technical development (level of knowledge in timber or masonry work). The principal aim is to improve our knowledge on the driving forces behind the material transformation and adaptation of the cities and their outskirts in the Southern Low Countries.

### **Houses of Stone, Houses of Wood – On Building a Perfect Society. Early Modern Town Planning, the Example of Sweden**

**Göran Tagesson** (Swedish National Heritage Board, Linköping)

In the period 1600 – 1718 Sweden was in rapid change, desperately seeking to live up to its new role as a local Superpower wannabe. Different aspects of Swedish society were modernized and developed, e.g. trade, industry, government and urban planning. Recent urban archaeological research enables very close studies concerning buildings and plot structure. During last decade, some large scale excavations were carried out in moved and totally renewed towns, e.g. Jönköping, Kalmar and Gothenburg. In these towns there seems to have been an initial plan including a strict geometrical town plan. We may also discern intentions of building the new urban space as an idealized structure, mirroring a hierarchical society. The housing culture seems to have played a major role in this process. On a very general level, the housing culture of the early modern period comprises the development from one-room buildings to two-room buildings, as well as the change from medieval inward orientated to outward orientated plot structures. The use of different new house types, as well as a different building technique, i.e. stone houses with more elaborated spatial solutions, may be discussed as having been a part of an overall plan to create a hierarchical society visible on the ground.

## **POSTERS**

### **City Images, Visualisation and Archaeology – Early Gothenburg within Its Fortifications**

**Andrine Nilsen** (University of Gothenburg, Gothenburg), **Richard Potter** (University of Gothenburg, Gothenburg)

The regular street patterns and canal systems of Gothenburg are the remnants of an early modern design. A limited num-

ber of standing buildings, built from stone or brick, also remain. Very little is known about early modern Gothenburg apart from what we can see in contemporary visualisations and texts. Gothenburg was visually dominated by its canal systems and fortifications with only the larger, more dominant stone buildings standing out from the multitude of ubiquitous wooden buildings. An image of a wooden town inside the stone walls is currently emerging from ongoing and past archaeological excavations. A 3D visualisation is a good way to increase our comprehension of early Gothenburg and bring it to life for both researchers and a larger audience. Through archive research, the study of contemporary imagery, and descriptions of the town, we are compiling an account of how Gothenburg most likely looked in 1698. Our interpretations and extrapolations will be presented in a 3D reconstruction featuring several areas of the town. In this poster, we discuss our methodology along with the theoretical implications of how our results should best be presented with an emphasis on source data and transparency.

### **The Change of Building Stone Materials in Florence from Middle Age to Renaissance until 20th century**

**Andrea Arrighetti** (Université libre de Bruxelles, Brussels), **Fabio Fratini** (University of Siena, Siena), **Elena Pechioni** (University of Florence, Florence)

The building materials used in Florentine architecture from the archaic period (Roman period and then from the XI<sup>th</sup> century) until the XIX<sup>th</sup> century, are closely linked to the available stone materials cropping out in the hills surrounding the city and to its history, characterized by a succession of architectural styles that produced substantial changes to the historical centre over the years. These materials, above all the Pietra Serena and Pietraforte sandstones, have been widely studied in their geological and petrographic aspects and also concerning their durability and problems of conservation. From the end of XIX century, in Florence, the artificial stone materials started to be used, particularly for architectonic decorations, thanks to the discovery of the modern hydraulic binders (Roman Cement and Portland cement) which made it possible a production (with the help of moulds) of decorative elements which hardness and appearance were similar to that of the natural stones (e.g. sandstones). The scientific studies on building stones materials used in Florence allowed to identify distinct varieties both within the two main sandstones (Pietra Serena and Pietraforte) and within the artificial stones contributing to a better knowledge of the building heritage of Florence.



### **T03S007 - RITUAL PARAPHERNALIA: THE EFFICACY OF THE MATERIAL**

**Organizers: Céline Murphy** (University of Kent, Kent), **Türkan Pilavcı** (Columbia University, New York)

Archaeological research has recently witnessed an increasing interest in the material aspects of artefacts. Theories of “materiality” (see e.g. Ingold et al., 2007 *Archaeological Dialogues* 14:1) have promoted the importance of examining the physical construct, material composition and ergonomic design of artefacts. Such approaches have indeed demonstrated that exploring these facets reveal a lot about the relationship individuals maintained with the raw materials, as well as with the objects themselves, during the different stages of the artefacts’ ‘life’ cycles. In this session, we therefore propose to explore the materials and manufacture techniques of Neolithic to Early Iron Age Eastern Mediterranean ritual paraphernalia in order to achieve further understandings of these objects’ status during cult activities. Discussion topics will include: • the influence of an object’s form and medium on its cultic function • the significance of the survival of traditional, the implementation of innovative, or the continuation of standardised manufacture technologies in the production of ritual paraphernalia • the dynamics of human and material relations in the making of ritual paraphernalia • the effect these artefacts’ materials, or the technologies employed in their manufacture, bear on social interaction in ritual and non-ritual contexts.

### **ORAL PRESENTATIONS**

#### **Neolithic Rhyta: A Pan-Balkan Cult**

**Lily Bonga** (Independent Scholar)

Neolithic “rhyta” are squat four-legged scoop-like vessels with a shallow vertical cavity and a thick basket handle. They are typically decorated with paint or incised. Although these vessels first appeared in the Early Neolithic, they proliferated in the Late Neolithic around 5,300 B.C., across a wide geographic area from Italy, Kosovo, Bosnia and Greece. Curiously, less than 10% of these vessels have been found intact, which has prompted several scholars to suggest that they were ritually broken. Archaeometric analysis shows that their production is highly standardized and that the vessels did not travel very far, which implies that the idea or technology traveled instead of the vessels themselves. Given their peculiar morphology, ornamentation and fragmentation, it seems clear that “rhyta” were used for display, perhaps in a ritual context. This paper assesses the current data on Neolithic “rhyta” and provides new suggestions for their efficacy.

in lives of Balkan ago-pastoral communities. The reason for their distinct shape and pan-Balkan popularity remains debated. Their functional use as salt pots is substantiated in this paper, and the various interpretations of symbolic meaning of the shape are evaluated.

### **The Form and the Body. Consumption of Alcoholic Beverages and Transfer of Ideology between Anatolia and the Aegean toward the End of the 3rd millennium BCE**

**Elif Ünlü** (Boğaziçi University, Istanbul)

As of their invention alcoholic beverages within a society have been of great importance not only in economic, but also in social and cultural spheres. This manifests itself in various ways from direct regulation and restriction to creation of socially accepted consumption patterns through a combination of taboo, social norms, and cultic ceremonies. Towards the end of the 3rd millennium BCE emphasis on communal consumption of alcoholic beverages, especially wine, manifests itself in the material culture of eastern Mediterranean settlements with the so-called “West Anatolian Drinking Set” consisting of drinking cups with characteristically oversized handles. During this period wine production was becoming a significant economic resource for the region and its consumption within specific ritual settings must have assumed an important social and cultural role. In this talk the role of the so-called “West Anatolian Drinking Set” within the local pottery repertoire of Tarsus-Gözlükule will be investigated. Subsequently the geographical scope will be expanded to the Aegean to explore impact of this drinking set on the local pottery traditions especially within the context of generating politics of value via conspicuous consumption of alcoholic beverages utilizing very specific vessel forms and the role of the body in engaging with the material.

### **Materialising Fragrance: Minoan Stone Blossom Bowls**

**Jo Day** (University College Dublin, Dublin)

Distinctive carved stone vessels, dating primarily to the Late Bronze Age on Crete, have been called “blossom bowls” by scholars, an apt name reflecting the carefully carved petals that embellish their exteriors and effectively turn the vessels into flowers of stone. They come from funerary and domestic contexts (when context is known) and it has been suggested that they held low-bulk precious organics like perfumes or spices. This paper moves interpretation beyond the visual characteristics of these artefacts to consider how their form and materiality affected their use, focusing especially on their olfactory significance. As containers for aromatic substances, the shape of blossom bowls provides sensory reinforcement for their contents; on removing the lid, they exude scent in the manner of a real flower. Yet unlike real flowers their stone-ness provides permanence to an otherwise ethereal phenomenon. These artefacts blur the boundaries between the natural and the artificial and provide visual, tactile and olfactory stimuli. Incorporation of these synaesthetic objects into rituals (be they funerary, commensal or private) helped to create real and metaphorical scented environments, pleasing to deities and humans alike, and contributed to the creation of ritual time, ritual space and embodied memories.

### **The Zoomorphic Cups of the Hittite Cult: Transformation through Form and Medium**

**Türkan Pilavcı** (Columbia University, New York)

Serving a drink to the deities is an essential element in the Hittite rituals of the Late Bronze Age Anatolia in securing the balance of the interdependent relation between the humans and the gods. As such, many cup names fulfilling this function are documented in the contemporary texts. However, one group of vessels- the animal shaped cups named BIBRU- stands out, coupled with the phrase “to drink a deity,” serving as part of the ritual paraphernalia to transform the sacrificial liquid through their material beings as containers. In this paper the material qualities of these cups will be investigated in order to understand this enigmatic phrase and why BIBRU qualify as an appropriate device in this cultic act. The texts record an array of forms, dimensions and media they are manufactured out of when discussing the BIBRU. The same variety can be observed when one studies the archaeological attestations. Thus, the aim of this paper is to correlate the material and the form of the zoomorphic cups to determine the features that enable the BIBRU to function, the preferences over the medium, the quality of execution in different media, and the significance of the diverse forms in performing the rituals.

### **Assorted Rites: Interpreting Diversity in Household Ritual Paraphernalia in Early Second millennium B.C. Anatolia**

**Yağmur Heffron** (University of Cambridge, Cambridge)

The primary locus of ritual activity for the mixed Assyro-Anatolian community of the *kārum* period in early 2nd millennium Anatolia is firmly located within the domestic sphere. The considerable variety of ritual paraphernalia uncovered in residential houses of this period not only attests to an active and widespread use of otherwise ordinary domestic settings as liminal settings, but also points to a complex religio-symbolic system. Focusing on the houses and households of Kültepe-Kaneš, this paper explores the ways in which different classes of ritual paraphernalia can be indicative of distinct ritual functions. Discussion focuses on three categories of ritual paraphernalia, each with specific ritual purposes as well as idi-

osyncratic social lives simply as “things”: 1) Zoomorphic and anthropomorphic vessels, which represent a highly specialized cultic purpose, but which were also found in storage contexts with other commercial goods, pointing to the widespread commoditization of these items; 2) Lead figurines, i.e. magically efficacious trinkets, which emerge in neighbourhood workshops in contrast to itinerant manufacture associated with the previous generation of these objects; and 3) Stone stelae, solemn installations which denote permanent zones of heightened liminality within households during their use lives, but are casually recycled as spolia between construction phases.

### **Ritual Functions of the Ceramics and Metal Objects from the Apollon Clarios Altars**

**Onur Zunal** (Ege University, Izmir)

East of the Hellenistic Apollon Clarios Temple, three altars with differently shaped bases have been discovered, which were in use since beginning of the Early Iron Age and throughout the Archaic Period. The pottery and metal objects recovered at these altars dedicated to Apollo are of great importance for our understanding of the beginning of the cult in Claros as they raise the question about their ritual functions. Among the pottery found at the altars, besides vessel forms of everyday use which we encounter in inhabited areas, there are also vessels particularly made for the sanctuaries and for different purposes. The objective of this report is to discuss the probable functions of the pottery forms and metal finds subject to this study. Based on the statistical evaluation of each pottery example, the ritual function of the form will be discussed; the metal objects will be used as validating elements to facilitate interpretation.

### **The Introduction of Metallurgy in the Southern Levant: Changing the Ritual Paraphernalia**

**Milena Gosic** (Ben-Gurion University of the Negev, Be'er Sheva), **Isaac Gilead** (Ben-Gurion University of the Negev, Be'er Sheva)

The Ghassulian culture of the southern Levant (ca. 4,500-4,000) of the Chalcolithic period is the first metalworking culture of the region. The present paper aims to analyze the role of the new material – copper – in the changes which occurred in ritual practices simultaneously with the advent of the new technology. The Ghassulian culture can be divided into two phases, with later phase starting around 4,300-4,200 BC. The changes between the phases include: abandonment of early and formation of new settlements, introduction of metallurgy, the appearance of second burial in ossuaries and new ritual assemblages. Ghassulian copper objects include axes, maceheads, standards, scepters, crowns, chisels and vessels. These are artifacts of ritual, including the chisels and axes that have no use-wear. Ritual artifacts which are abundant in the early phase of the culture either disappeared or changed, like violin-shape figurines, or diminished in numbers, like ceramic cornets. By comparing the ritual artifacts of the two Ghassulian phases, the present paper suggests that the introduction of copper was accompanied by changes in ritual, evinced in the copper artifacts, and that the transformational quality of metal influenced those changes.

### **Form Follows Ritual: An Experimental and Experiential Approach to Chalcolithic Materiality**

**Dragos Gheorghiu** (National University of Arts, Bucharest)

In the Chalcolithic emergent stratified societies from the Eastern Mediterranean and the Balkans one can identify ritual activities from the presence of paraphernalia, as well as from the shape of other categories of objects. Beside the ritual use of objects expressed by their exterior shape, experimental archaeology revealed the existence of other kind of rituals, hidden in the technology of making (Gheorghiu 2011a; 2011b), which resulted from standardized operations determined by the characteristics of the materials used. A special case of the relationship between technology and materiality is represented by the skeuomorphic objects, where the technology of making the original is not used anymore to make the copied object. The paper will examine comparatively a series of artefacts from the Eastern Mediterranean and from beyond, and will try to describe some of the technological or domestic rituals that shaped the form of the objects. Gheorghiu, D., 2011a, Ritual chains, In Scarcella, S. (ed.) *Archaeological Ceramics: A Review of Current Research*, British Archaeological Reports International Series S-2193, Oxford: Archaeopress. Gheorghiu, D., 2011b, Experimenting technological rituals, In Gheorghiu D., and Children G. (eds.), *Experiments with Past Materialities*. British Archaeological Reports International Series 2302. Archaeopress. Oxford.

### **Experience Versus Form: On Minoan Peak Sanctuary Figurines**

**Céline Murphy** (University of Kent, Kent)

Two types of figurines are typically discovered at Minoan peak sanctuaries: anthropomorphic figurines and zoomorphic figurines. Identified as ritual paraphernalia, they are traditionally interpreted as representations of human devotees and local fauna, dedicated to ensure health and protection (Myres 1902/3; Peatfield 1990; Rutkowski 1991). While both types of figurines have received satisfying amounts of academic attention in the form of discussions on their function or on the course of their manufacture (Myres 1902/3; Rutkowski 1991; Pilali-Papasteriou 1994; Karetsou & Kourou 1996; Rethemiotakis 2001; Gesell 2011), it is conspicuous that these studies have been carried out independently and that few comparisons have been



drawn between them. It has only ever been noted that the figurines differ because of their representative qualities. In this paper, I revisit this situation. In bringing together existing discussions on manufacture and my own experimental results, I explore the possibility that it is the way in which the figurines were made which differentiates them rather than what they represent. Could their final shape be indicative of different forms of engagement with the material? Could it be the structure of the gestures which gives them a ritual significance? Could the figurines' form be a reference to this experience?

### **Personal Deity and the Privacy of the Ritual. What the Form of a Figurine Tells us about the Type of Cult?**

**Katarzyna Zeman-Wisniewska** (Institute of Archaeology, Cardinal Stefan Wyszyński University, Warsaw)

Alongside their symbolic meaning, it is important to acknowledge the materiality of figurines as products. The practicalities of a figurine seen as a material object offer us a different set of interpretations for certain choices of the craftsman/craftswoman like the morphological form of the figurine. Eastern Mediterranean LBA/EIA group of figurines, with characteristic steam-like or cylindrical lower part of bodies has been often misinterpreted due to lack of this approach. Because of their ergonomic design they could easily be held in one's hand with fingers wrapped around the pillar-like lower part, while the torso, arms and head would have been visible. Thus, their dimensions and shape encouraged more physical engagement, e.g. touching and handling, instead of simply looking at. Moreover it influenced the character of the cult into which figurines were incorporated, by forcing a closer proximity between the object and the viewer or handler, which introduces a sense of intimacy and a notion of possession, which would facilitate the process of personal and intimate offering and/or prayer. This will be further discussed using examples of LBA/EIA pillar figurines and iconography from the Aegean, Cyprus and Levant.

### **The Influence of the Athana Lindia Cult in Lindos, Rhodes, through the Votive Terracotta Figurines**

**Sanne Hoffmann** (National Museum of Denmark, Copenhagen)

This is a case study of the dynamic between cult and the use and production of votives. From the sanctuary of Athana Lindia more than 2700 votive terracotta figurines, mainly of local production, have been revealed, from the Geometric period to the end of the Classical period. The sanctuary therefore provides a perfect opportunity to study the production, design and use of votive figurines as a reflection and a possible influence on both perception as well as the function of the cult. This paper wishes to discuss whether changes in the symbolic value of figurines, studied in a diachronic and quantitative perspective could enlighten if the local production of votives not only reflected a cult but also influenced it. Is it possible that the terracotta production not simply mirrored which aspects were considered to be relevant, but also increased or reduced the diversity of aspects and ritual practice through time?



### **T03S008 - ALMOST THERE - CONSUMPTION OF "LUXURIOUS" PRODUCTS AMONG ORDINARY PEOPLE IN THE MEDIEVAL AND EARLY HISTORIC PERIODS**

**Organizers:** Georg Haggrén (University of Helsinki, Helsinki), Gitte Hansen (University of Bergen, Bergen)

During the medieval and early historic periods (c. 1000-1600), new sets of economic, social and religious networks are formed across Europe and beyond: as a result 'exotic' goods, that is products and raw materials from places far away, now show up in the archaeological records in every corner of the known world.

In the Middle Ages and the early historic period aristocracy was aristocracy and the peasants were peasants living in totally different spheres – or were there some nuances? Exotic raw materials and craftsman's products such as cloth, wine and spices from the South or walrus ivory, jet, amber and furs from the North, were commonly in use in courts and noble households. However, rather often archaeologists recover finds that do not seem to belong to the social context of the site we are researching. Seemingly exotic materials like silk, ceramics, glass and other foreign imports show up in more humble contexts in both urban and rural environments. Osteological and palaeobotanical analyses also reveal material that seemingly doesn't belong to the social context of the site. Our preconception of exotica as unquestionable signifiers of wealth are challenged; how should we interpret finds like silk embroidered leather shoes of the early townspeople in Norway or foreign glass beakers on a table of a high medieval Scandinavian peasant? Are these only odd cases/occasional examples of material culture which by chance happened to be lost by a foreign or wealthy visitor? Or do we have an all too simple schematic vision of signifiers of wealth and consumption patterns among ordinary people in past societies? How do we distinguish between 'real exclusivity' and 'luxury for everyone'? How and where were new taste and fashions taken up and, not least, re-negotiated among the middle and lower classes? How soon were they taken up and through which kind of mechanisms? Are the exotic finds really as luxurious as they seem at the first glimpse, are they really items of best quality or something else? There is a growing interest in studying the lives of 'ordinary people'; the middle and lower classes. In this session we focus on new and, for researchers unexpected or surprising, consumption patterns among 'ordinary people' of the medieval and early historic periods in Europe and beyond. We welcome papers that take up these questions on a, theoretically informed, empirical basis.



## ORAL PRESENTATIONS

### **Fancy Shoes and the Consumption of Silk Embroidery Yarn in 11th-13th century Northern Europe**

**Gitte Hansen** (University Museum of Bergen, Bergen)

Silk is traditionally regarded as an exclusive article, associated with society's social elite. Likewise shoes with embroidery are depicted in iconographical sources as part of the personal outfit of wealthy men and women within secular and ecclesiastic circles. In early medieval Norway (11th - mid. 13th centuries) leather shoes with embroidery in silk yarn are common in urban contexts. With the large number of finds it is tempting to ask if silk and in particular silk yarn really was an exclusive luxury commodity for the few. With the point of outset in archaeological sources from Bergen, Trondheim and Oslo in Norway, it is shown that silk yarn was widely used for embroideries on leather shoes in Norway. In urban centres around the Baltic and the North Sea leather shoes with silk embroideries are also found. Silk yarn must thus have been an important low grade silk commodity already by the last quarter of the 11th century.

### **"Luxury" Products? The Possession and Use of Luxury Textiles in Later Medieval Dijon**

**Katherine Wilson** (Department of History and Archaeology, The University of Chester, Chester)

Post Black-Death Europe was marked by the concentration of wealth in fewer hands, which contributed to spectacular growth in the market for luxury products – the so-called 'consumer revolution'. High quality textiles were in particular demand: silks, damasks, velvets, and tapestries appeared in a variety of new forms, including cushions, belts and purses, to satisfy the growing consumer base. Previous research has tended unthinkingly to ascribe the term 'luxury' to these textiles and see them as predominantly royal or ducal acquisitions, used for status display and political propaganda. In contrast, this paper will focus on the emergence of a new group of high-quality textile consumers, the later medieval urban populace of Dijon, drawing on evidence from residences and household inventories. Examining Dijon as a centre for elite consumption and display, it will identify who owned high-quality textiles and explore the spaces in which these textiles were used and the ways they were distinguished from other household objects. Finally, it will consider why high-quality textiles were possessed and used and whether they were indeed considered a 'luxury' product by their later medieval urban possessors.

### **A Burgher should not Wear Silk, Except Zindeldort: Regulations and Reality in Late Medieval and Early Modern Tartu (Estonia)**

**Riina Rammo** (University of Tartu, Tartu)

Cloth was one of the main goods traded by the Hanseatic merchants in medieval and early modern towns of Livonia, but only silk among these imported fabrics can be regarded as a carrier of exotic and luxurious value. In medieval times silk in small quantities was imported mostly from Byzantine and Southern part of Europe to northern towns. The consumption of silk was restricted, both due to economic reasons and sumptuary restrictions. Find material from cesspits of five sites in Tartu that are dated to the medieval and early medieval periods (14th-16th cc) has been studied. All cesspits can be related with 'ordinary' town people of middling sort, for example craftsmen. Although the finds are not numerous, altogether 16 scraps of silk have been found from these sites that reveal desire for luxury in people's mind. The fragments are often small strips and bands that indicate its use for the adornments of clothing (trimmings). The question about the value and meaning of the silk scraps in the communication between the wearer and the public will be addressed in the presentation.

### **On the Border of Town**

**Lene Høst-Madsen** (Skanderborg Museum, Skanderborg)

Refuse is a valuable resource for research regarding consumption of luxurious product among ordinary people. Research on material from large scale excavations of refuse dumps sites in Copenhagen reveals some of the potential a theoretical approach possess. The material is extremely rich and well preserved and forms a very strong archaeological source material regarding urban material culture in Copenhagen. Refuse reflects what is not in use any more and the large refuse dumps that appear in Copenhagen can be seen as part of a consuming urban development where some resources become scarce and some become plentiful. Luxury is not a fundamental element of the site; however the material reflects an international city with colonies and long-distance trade by a relatively high appearance of Chinese porcelain and silk combined with more scattered finds of rarities such as porcelain snails, coconuts, baleen and peach stones. Generally it is assumed that Copenhagen possess a special position in the Scandinavian area in the post medieval period, because it is the Capital of Denmark and therefor becomes by far the largest and most international town in Scandinavia. But the question is if this is reflected in the material culture of ordinary people in the city?

### **A Life of Luxury? Copenhagen in the 17th century**

**Ed Lyne** (Museum of Copenhagen, Copenhagen)

The excavations of the city moat in Copenhagen between 2010 and 2013 resulted in the recovery of an unprecedented volume of artefactual material, dating mainly from the 17th century. This body of material is comprised of both mundane

everyday objects such as pottery, iron fittings, and animal bone waste, but also of some seemingly unusual and high quality items, such as weapon parts, tokens, cloth seals, tableware, silks and many others, together giving an image of a city with some wealthy urban consumers among inhabitants. The source material, comprising of refuse from around the city, can be suggested to reflect the “ordinary life” in the city at the time in question. But where do we begin when interpreting this assemblage? How do we understand the items which appear to be unusual - are these truly hinting at the presence of the social elite - or is this view too simplistic? The evidence from Copenhagen is discussed in terms of refuse disposal patterns and with the aim of investigating ways to classify the contrasting kinds of find material to find out more about Copenhagen’s urban life and social stratification in the early Post-Medieval period.

### **Sophisticated Table Ware and a Royal Coat-of-Arms? Interpretations of the Deserted Medieval Village of Mankby, Finland**

**Georg Haggrén** (University of Helsinki, Helsinki), **Anna-Maria Salonen** (University of Helsinki, Helsinki), **Elina Terävä** (University of Helsinki, Helsinki)

In 2007–2013 large excavations took place in Mankby in Espoo parish, Southern Finland. Mankby was a small village settled by free holders during the Middle Ages but deserted in the 1550’s. The excavations revealed a relative wealthy peasant settlement. The material culture of these peasants followed that of the Hanseatic merchants. This is visualized by such finds as delicate table knives and glass beakers. We know that in the 1550’s there were no noble families in the village. However, one of the dwellings produced finds which are hard to interpret as belongings of the ordinary peasants. The large dwelling house with its stone cellar itself as well as some of the finds reflect a material culture of relatively high standard. The occupants of the house have achieved items imported from distant countries but not any really exclusive things. The status of them is shown by for example an enameled strap end with a (royal?) coat-of-arms. Do we have here a small manor house settled by a noble family who was almost there, among the nobility? A family, which at the end failed in keeping its positions?

### **“...Parrots, Strange Wild Beasts, Pottery Called Valenswerc and Similar Novelties the Galleys Bring with Them...” The Social Context of Consumption of Late Medieval Mediterranean Singularities in 15th cent. Flanders (Belgium)**

**Wim De Clercq** (Dept. of Archaeology Ghent University, Ghent)

During the late Medieval period, the town of Bruges and its outer ports became the most important economic centre in North-West Europe. The area was a gateway through which goods, people and ideas were shipped from north to south. A part from large quantities of commodities shipped in bulk, also rare luxury objects as objects of trade or as gifts were where brought to Flanders. Among these the imports from the Mediterranean and especially the pottery from Valencia stand out for their quality. In the paper we will examine how these new products were negotiated by up-start people at the Burgundian court, who created a new material world who fitted their newly acquired social identity.

### **Beyond Luxurious Appearance: Technological Characterization of Iznik Ceramics from the Belgrade Fortress**

**Jelena Živković** (University College London in Qatar, Doha), **Vesna Bikić** (Institute of Archaeology, Belgrade)

This paper aims to present relationship between production technology and consumption patterns of well-contexted Iznik ceramics from the Belgrade Fortress, stylistically dated to the 16th century. Followed the Ottoman conquest of the town in 1521, the social structure was altered in a favor of Muslim population, which resulted in changes of pottery assemblages. Although not on the border in the succeeding century, the fort had substantially military function. In this social context, archaeological finds of a few Iznik wares, chronologically stretched over a whole century, got a status of luxurious items. Compositional analysis using EDS-SEM and XRF methods show high-costs of Iznik fritware production in comparison with domestic earthenware pottery. Iznik technology was the peak of the Islamic ceramic production, with proportional quartz-frit-clay measures for a body and a slip as well as the good quality lead-type glaze with a range of decorative pigments. The wares are divided into the early period, which precedes the conquest of Belgrade, marked with experiments in different constituents and the phase of standardization after 1520, the same as the previous works showed. The archaeological interpretation considers these two technological phases within a wider context of luxurious and common objects in early Ottoman Belgrade.

### **“Pricy Pots or Convenient Crockery?” – The Use of Imported Pottery in Late Medieval and Early Modern Norway**

**Volker Demuth** (Telemark county council - cultural heritage management, Skien)

Archaeological research has unearthed a large number of pottery from the 12th to 17th century in Norway, that is exclusively imported. In Norway existed no domestic pottery in that period, which makes the situation in this country quite special in a European context. However, especially many of the decorated and well-made stoneware jugs from the late medieval and early modern period, as well as other decorated wares were often interpreted as luxury goods. But were they really that luxurious and not at least, were they used as an instrument of social distinction? To evaluate these questions,

the paper shall try to work out where and of whom pottery was used in Norway and in the towns south of the North Sea, from where the majority of the finds were achieved. The value of the traded ceramics for the contemporary consumers in what may be described as the “Hanseatic sphere” around the North Sea will be discussed. Examples of finds from both consumer sites and from sites where pottery most probably was traded show together with the rare written sources, that pottery in this period obviously was available to the broad public.

### **Pottery as a Luxury in Medieval Pisa? First Data for the Identification of Some Social Markers**

**Marcella Giorgio** (University of Pisa, Pisa)

The urban archaeological research done in the last 15 years have allowed to investigate the complex relationship between ceramics and society in Pisa from the tenth to the fifteenth century. The discovery of large quantities of pottery in closed environments of socially well-defined sites allowed to note some differences in the kits used by different social classes and to observe differences in the supplies and uses. But ceramics classes considered prerogative of wealthy social classes was also found in production sites. To distinguish between different social classes is not only necessary, therefore, to find pottery, but we have to observe the technological and qualitative characteristics of the pottery: the differences (which can range from period to period according to the places of origin and quality of imports, the change of society over time, the change in eating habits) are given by the diversity in morphologies, decorations and uses. These changes, then, and not only the presence of certain ceramics, become markers to identify the users within the medieval Pisan society. This paper proposes, therefore, to present an overview of these studies in order to provide a first synthesis on a sensitive topic: the definition of medieval Pisan society socio-economic structure.

### **Luxury in the North. Luxury Consumption in the Danish Realm**

**Jette Linaa** (Antiquarian Department, Moesgård Museum, Højbjerg)

The presence of luxury items in medieval and early modern urban centers, villages and fortifications in the Danish realm calls for clarification and explanation. Traditionally the focus has been on the lives of so called ordinary people, but recent research has demonstrated that luxury consumption was far more widespread than previously thought. A straight forward relationship between luxury and wealth is clearly not the answer: more complex strategies of consumption is at stake. The aim of this paper is to shed light on some of the social and cultural strategies that may hide behind the flow of luxury in the middle ages and early modern period. This will be done through examples primarily from the sphere of consumption from archaeological as well as historical sources. The main cases will be Italian and Iberian majolica, Chinese porcelain and Venetian glass vessels that ended far north in the Danish realm. Special emphasis will be put on the mediating powers of what we call luxury items in social and cultural meetings. These will be connected with social strategies that involve an active use of luxury consumption in certain parts of the heterogeneous Danish population.

### **Technology as Luxury**

**Krish Seetah** (Stanford University, Stanford), **Aleks Pluskowski** (Reading University, Reading)

This paper attempts to make our appreciation of ‘luxury’ more complex: can technology, alongside material goods, be considered a luxury? Are we able to address luxury in more nuanced ways if we adopt the notion that elite and luxury are synonymous, at least theoretically? Using this stance as a point of departure, we present research on the details of basic animal processing in a new light: on the one hand, luxurious (with an associated paraphernalia of better quality tools) approaches as practiced by elite German crusader/colonist groups, versus the technology of local, indigenous pre-Christian peasantry. This is contrasted with evidence from the more usual luxury items (fur, amber). We explore how the adoption of elite practices was nuanced and informative on a level far greater than the mere acceptance of new models imposed by the elite, potentially serving to highlight issues of segregation and knowledge transfer.

### **Foolishness of Appetite. Historical Archaeology and Archaeobotany of Spices in Central Europe**

**Katerina Kodydkova** (Laboratory of Archaeobotany and Paleoecology, Faculty of Science, University of South Bohemia, Ceske Budejovice), **Michal Preusz** (Laboratory of Archaeobotany and Paleoecology, Faculty of Science, University of South Bohemia, Ceske Budejovice), **Klara Paclikova** (Laboratory of Archaeobotany and Paleoecology, Faculty of Science, University of South Bohemia, Ceske Budejovice)

Various kinds of exotic spices imported to Europe can be seen as taxa that encourage consumers taste sensuality, or as an important commercial article, which influenced the social and cultural life in Europe, Africa and Asia. Archaeobotany and global historical archeology bring new view on Medieval curiosity and mercantilist dynamics of Modern times, that reflect remarkable ways to find new exotic plantations, crazy battles for luxury fruits and their distribution to consumers in Central Europe. Framing the archaeobotanical findings into the socio-cultural context of households offers insight into the real value of these items. Were all kinds of spices really a luxury commodity?

## **Prague Castle and Hradčany in the Early Modern Era. Was Extravagance the Privilege of the Royal Court?**

**Gabriela Blažková** (Institute of Archaeology of Academy of Science of the Czech Republic, Prague), **Josef Matiašek** (Institute of Archaeology of Academy of Science of the Czech Republic, Prague)

In the almost 90-years' research excavation of Prague Castle and Hradčany (Prague, Czech Republic) a rich collection of find assemblages from early modern (1500–1650) features (market place, cesspits, dumps) has been made. Since the early Middle Ages, Prague Castle has been the centre of the Bohemian state. It was not only the seat of the court and the royal retinue, but as well of the service staff. The bordering quarter of Hradčany was a favoured location of the seats of nobles and clergymen. In a couple of cases, the analysis of iconographic and historical sources has enabled the identification of discrete social environments (craftsmen, imperial staff, nobility, Church). Apart from ceramic finds and Renaissance glass a number of plant macro-remains were helpful in the detailed analysis of individual find assemblages, among them numerous fruit species, medical plants, spices, and tobacco. The correlation between luxury and number of imports on one hand, and social status of their owners on the other, can be thought of on grounds of the long-term survey. At the same time, the find assemblages supplement the research of commercial routes between Prague and other commercial centres, including those overseas.

## **The World will be Deceived; Copying and Manipulation of Gemstones**

**Marianne Vedeler** (Museum of Culture History, University of Oslo, Oslo), **Hartmut Kutzke** (Museum of Culture History, University of Oslo, Oslo)

During the medieval period, precious gemstones were popular as personal adornment as well as for protection and medical use. Exotic raw materials such as sapphire were expensive in Scandinavia, but there were also less costly alternatives. Goldsmiths, glassmakers and other craftsmen developed methods for imitating colours, shine and visual expression of precious gemstones. Combinations of glass, simpler stones, metals and dyes were used to create a world of colour and shine. In a world where inherent powers of things could affect people's everyday life, the sheen and colour of gemstones played an important role. The practical development of goldsmith art and use of real and imitated gemstones can largely be seen in context with the notion that stones as well as metals and inscriptions not only had an aesthetic value, but also filled what was seen as practical medical or magic needs. This paper will explore archaeological finds from Scandinavia as well as written sources in the light of imitation of gemstones in the medieval period. Technical aspects of imitation and enhancement of precious stones will be discussed as well as the philosophical background.

## **A Glove for Every Hand?**

**Annemarieke Willemsen** (Rijksmuseum van Oudheden, Netherlands Industry, Leiden)

Uses and users of gloves and mittens in northwestern Europe, 1300-1700 AD Considering the amount of attention paid to shoes in archaeology, it is surprising that 'hand shoes' are relatively unknown. Many museums in northwestern Europe own highly decorated 17th-century leather gloves, which has caused the public to see gloves as a luxury article only destined for royalty and high society. But new research focussing on archaeological finds of late-medieval and early-modern gloves, mittens and gauntlets in the Netherlands (and surrounding countries) shows that the use of gloves and mittens was in reality widespread. These excavated objects were made of leather, textile and metal, and a surprising part of the finds dates from as early as the 14th century. As it turns out, there were many types of hand coverings, all with their own function, and often related to certain professions, activities or groups. The iconography of gloves underlines this variety, and adds their colours, specific uses and an image of the people who wore them, from shepherds' mittens to beguine's Sunday gloves. Gloves and mittens were generally worn, for both comfort and display, in all layers of society.

## **POSTER**

### **The Russian National Clothing in 16th-17th cc. as Revealed by Archaeology**

**Irina I. Elkina** (Institute of Archaeology of Russian Academy of Sciences, Moscow)

The tradition of Russian national clothing is a very distinctive one. It covers the very wide space of the Muscovy with its winter, cold and full of snow, and reflects the peculiar Russian way of life. The elements of the Medieval dress code in Russia manage to survive till the early 18th century (in the peasantry much longer). Alas, we do not have the full picture of the textile production in Muscovy. Archaeology of Russian textile is the only way to add some information. But archaeologists would find the object of textile only in fragments. The fragments did look not nice, but each of them is full of information of the technology, sewing and tailoring. Normally they found dress in rich tombs. It is due to the permanent temperature and wet regime in the grave, the metallic (silver or bronze) cords and special metalized ink for silk. Object often has its own specific elements of golden weave and other ornamentation. The map of textile fragments in Russia is full of dots already, and we use methods of the simple statistic. It is clear, that the percentage of the secular clothing is higher, than that of church textile.



## **T03S009 - EXPLORING THE SOCIAL FABRIC OF THE PAST — MATERIAL CULTURE AND TECHNOLOGICAL APPROACHES TO THE STUDY OF ATTIRE**

**Organizers:** William M. Balco (College of Lake County, Department of Anthropology, Grayslake), Christoph Kremer (Faculty of Archaeology, University of Leiden, Leiden)

Clothing and adornment are significant components of personal assemblages, yet are seldom recovered due to marginal preservation. Yet such attire remains an important and archaeologically visible staple of the economic and social lives of past populations. Various crafts and technologies are deeply embedded in their manufacture, preserving a wide variety of emblematic and assertive styles communicating sophisticated interaction between different cultures. Apart from economic and social values, the technological knowledge associated with the manufacture of attire is an important element to consider archaeologically. Mastery of this craft could create inequality and structure the society in different ways (e.g. alongside kin, gender, age, or type of craft). This session explores the entanglement of craft production and society by studying the physical material, production technology, exchange, use, and discard of clothing and personal adornment in the past. Evidence recovered from diverse cultures located on several continents will be discussed in order to explore local and global dimensions of personal adornment.

### **ORAL PRESENTATIONS**

#### **The Sheep People: The Embodied Experience of Living with and of Sheep**

**Kristin Armstrong Oma** (University of Stavanger, Stavanger)

The embodied knowledge of living with sheep was woven into the social fabric of attire in the northern European Bronze Age. This paper addresses the social context of the wool textiles recovered from the Danish Bronze Age oak coffin graves, and Scandinavian longhouses that provided life-space for humans and animals both. The social context unfolds to include an embodiment and intimacy between humans, sheep and sheep materiality that is studied archaeologically by the organisation of the households, subsistence strategies as well as textile production. I suggest that due to an intensification of wool textile production, sheep became household members within the Bronze Age longhouses. An increase in flock size led to an intensification of engagement with sheep and their materiality. The engagement with sheep became an embodied, tactile experience; textiles that clad human bodies would retain not only the smell of sheep, but also the feel of touching the fleece.

#### **Luxurious or Popular? Silk in Early Chinese Culture**

**Marta Zuchowska** (Institute of Archaeology, University of Warsaw, Warsaw)

Sericulture was an important part of Chinese art, mythology, economy and everyday life for millennia. This omnipresence in fact makes the picture of the social context of silk quite unclear. We used to see silk cloth as a luxurious product, in ancient Rome worth its weight in gold. But it seems not so obvious whether it was actually so precious in ancient China. Multiple sources prove that, at least in earlier periods of Chinese civilisation, silk was mainly produced and used by simple farmers. Technological development during Han dynasty reign caused the diversification of textile qualities and uses. House production in the countryside was flourishing but weaving activities got more important status, as proved by the new finds of looms excavated in the aristocratic grave in Chengdu. Further evidence shows that together with technological development, the place of silk in Chinese society, its value and symbolic meaning also change. The aim of the present paper is to analyse the archaeological, iconographical and textual sources in order to understand the changing role of silk in Chinese society up to the Tang dynasty reign.

#### **Anterior Tooth Wear Reflecting Using Teeth as Tools for Soft Material Processing in the Lepenski Vir Culture (9500-5500 BC), Serbia**

**Marija Radović** (Department of Archaeology, Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade, Belgrade), **Marko Porčić** (Department of Archaeology, Faculty of Philosophy, University of Belgrade, Belgrade)

Technological knowledge and craft-works of past societies are known mostly by tool analyses. In this research we provide new line of evidence by investigation of non-alimentary use of human teeth. Specific patterns of anterior tooth wear can be the result of task-related activities of an individual's teeth. Their form and positioning are most consistent with processing of animal leather, large animal tendons, or fibrous plants (for cordage etc.). For tracing activities where front teeth were exposed to use as a "third hand" or as a part of a tool kit (for tearing, softening and cutting), we analyzed 89 individuals' dentition (1308 teeth) from the Danube Gorges anthropological collection (Lepenski Vir culture, 9500 - 5500 BC). Specific patterns of wear resulted from non-alimentary use of teeth were detected in 22.5% (20/89) of individuals. Certain variations in sex and age categories were observed and discussed. Based on ethnographic evidence, the exceptionally heavy anterior tooth wear exhibited by these individuals can be explained by their cultural practices and technological knowledge.



In these individuals teeth appear to have formed an integral part of their tool kit in soft materials processing, which might be used for cloth manufacturing.

### **Skill, Knowledge, and Gender Identities in the Textile Production of Bronze Age Northern Italy**

**Christoph Kremer** (Faculty of Archaeology, University of Leiden, Leiden)

Textile implements were an important medium to express female gender identity in Prehistoric Italy. They are specifically found in graves since the Copper Age. Throughout the Bronze Age they were becoming a much more common funerary offering. This custom was then widespread throughout the Italian peninsula and especially found in the wealthier graves of this period. They seem to appear specifically in a period (ca. 15th century BC) in which various innovations in the textile production are traceable in the archaeological record. During this time the twill weave was adopted/invented in this region and wool finally became the dominant fibre, to mention a few. This paper seeks therefore to shed some light on the spread of these innovations and their possible impact on the society. The main question will be how the skill and knowledge of this particular craft might be reflected with a particular role in the society.

### **Entangled Threads: Multiethnic Textile Production in Ancient Western Sicily**

**William M. Balco** (College of Lake County, Grayslake)

Indigenous Sicilian textile production stylistically transformed after the arrival of Greek and Phoenician colonists and merchants in the mid-first millennium BC. As indigenous populations interacted with these foreigners, new techniques and hardware associated with the manufacture of textiles were introduced. Consequently, indigenous Sicilian weavers absorbed foreign-style hardware such as loomweights, spindle whorls, and needles, choosing to utilize them alongside their own. An exploration of loomweights from three western Sicilian population centers demonstrates that indigenous weavers incorporated foreign-style loomweights manufactured locally, attesting the depth to which the indigenous populations were socially entangled. This effectively transformed the craft of household textile production, not just the requisite hardware.

### **You Are what You Wear (and Weave)? The Contribution of Loom Weights in the Study of Cloth Production and Attire in Pre-Roman South Italy**

**Alessandro Quercia** (Soprintendenza per i Beni Archeologici del Piemonte e del Museo Antichità Egizie, Torino), **Lynn Foxhall** (University of Leicester, Leicester)

Loom weights have rarely been the subject of careful analysis, although they provide important information about weaving on the warp weighted loom, an activity associated commonly with women in Pre-Roman South Italy. Their systematic and contextual study allows us to increase our knowledge in the technologies of textile production, as well as to understand better the manufacturing processes and life histories of loom weights and other items of weaving equipment. Also, the loom weights from Pre Roman South Italy were regularly 'personalized' with a wide range of marks, including the impressions of objects related to personal adornments and attire, such as fibulae, decorated finger rings and earrings. Furthermore, some decorations on the weights are interpreted as 'reminders' of the motifs and patterns woven on the textiles produced by the looms where these tools were hanged on. This paper explores how these much neglected objects not only inform us about the various weaving techniques employed for producing textiles, but also they were both symbolically and in practical terms linked to the clothing and the adornments used by the Greek and indigenous communities who lived in South Italy, revealing also clues of socio-cultural, familial and personal relationships especially among women.

### **Loom Weight Identities in Archaic South Italy and Sicily**

**Hedvig Landenius Enegren** (The Danish National Research Foundation's Centre for Textile Research-CTR, Saxo Institute, University of Copenhagen, Copenhagen)

Loom weights are a very common archaeological find. They were used on the warp-weighted loom to give the right tension to the warp threads required for optimal weaving. Experimental archaeology, involving the use of replicas of actual loom weights recovered in the archaeological record, shows that loom weights can provide us, within a range, with information on the kinds of textiles produced at any given archaeological site, although the textiles themselves have perished. Loom weights, fashioned in diverse shapes and also at times decorated, may thus be regarded as artefacts in their own right. This paper will address loom weights unearthed at selected South Italian and Sicilian sites and discuss identity within the context of settler influx and indigenous populations in the Archaic and Early Classical periods, 7th to 5th centuries BCE.

### **Dressing the Dead in Iron Age Germany: Evidence for Clothing and Costume from the Landscape of Ancestors Project**

**Bettina Arnold** (University of Wisconsin-Milwaukee, Milwaukee), **Sabine Hagmann** (Landesamt für Denkmalpflege Baden, Württemberg/Hemmenhofen)

Both head and belt ornament appear to have been especially lavish in the burials of a subset of elite women between 600 and 500 BC in the Heuneburg region. Excavations in two mounds in the Speckhau group between 1999 and 2002 yielded



five graves with elaborate belt decoration and an equal number with head ornament ranging from six to twelve hair, veil or bonnet rings and from one to thirteen hollow-ball headed pins probably also attached to some form of head covering. Restoration of the finds from these burials coupled with experimental archaeology have now progressed sufficiently to allow some discussion of the varied styles and production techniques associated with the individual costume elements, which in turn suggest a surprising degree of personal agency in the selection of such pieces. This paper will discuss the implications of these new results for our understanding of social signifiers related to gender, age and status as well as the organization of metallurgical production in this Iron Age community.

### **What Brooches Do or the Power of Pinning in the Roman Empire**

**Tatiana Ivleva** (Leiden University, Leiden)

The paper focuses on particular Roman dress accessories – brooches, known in Latin as fibulae –, widely worn by the population in the western provinces of the Empire in the first to the third centuries A.D. Brooches pinned two pieces of a person's clothing together and were positioned on the upper part of a dress, functioning as cloths-fasteners and decorative objects. This position at shoulder level, a highly visible place on a dress, invites further discussion on their significance, i.e., that most brooches were actually worn to be seen. The various shapes, colours, and motifs of brooches in circulation in the Roman West indicate that the wearers had a choice what style of fibulae to wear, a choice which depended on various meanings and signals the owners wished to project relating to status, religious preference, gender or age, and perhaps reflecting foreign origin. The paper investigates through case-studies how these highly visible and decorative dress items reflect the supply and demand in provincial societies of the Roman West, i.e. how did people use brooches to reflect their preferences and aspirations, and how did craftspeople meet the societal bodily desires for the adornments with creative visionary gusto.

### **The Early Medieval Set of Female's Decorations of the Dnieper Region: "Collusion of Craftsmen", Status Demonstration, or Gifts to the Gods?**

**Vlasta Rodinkova** (Institute of Archaeology of Russian Academy of Sciences, Moscow)

The rich complex of female's decorations from the Dnieper region is one of the striking phenomena of early medieval Eastern Europe. Completely this set of ornaments is presented in a series of hoards hidden in the third quarter of the VII c. The most famous among them is Martynovka hoard. There are several points of view of the nature and significance of this complex. 1. It is a festive costume, "products of mass consumption", results of activities of series of craft workshops united by common art and production traditions. Offering its goods, they don't satisfy the demand of the local population, but form sales market for their own production. 2. It is an evidence of the existence of political formation (similar to "barbarous kingdoms" of Western Europe), ruling elite of which needed trappings of its power. This set of ornaments was specially created to perform the demo function of property and social status of its owners. 3. Perhaps some treasures similar to Martynovka hoard have no practical but symbolic character. Female's decorations could be votive objects used in rituals of initiation, inheritance of san, securing of status, etc. Arguments in support of each opinion will be discussed in the report.

### **A Diachronic Perspective on Personal Adornment at Çatalhöyük**

**Milena Vasić** (Freie Universität Berlin, Berlin)

The Near Eastern Neolithic is a period of great transitions in the history of humans including a trend toward sedentism and increased material exploitation, accompanied by the proliferation of ritual and symbolism. These changes indicate greater social complexities and an increased entanglement between humans and things. Personal adornment was one of the key aspects in this transition. The Neolithic archaeological site of Çatalhöyük located in central Anatolia, Turkey has been famous for some time for its distinctive symbolic complexity and its use of a wide range of symbolic themes. Due to a combination of good preservation, a long temporal occupation, numerous burials and a large sample of items of adornment from many types of contexts, Çatalhöyük represents an excellent dataset for studying personal adornment. The aim of this paper is to present changes in personal adornment at Çatalhöyük over the course of its occupation. Over a time span of about 1300 years, ornaments become more numerous, more elaborate, and more diverse. The expansion of ornaments points to their increased importance, value, and significance whilst at the same time indicating an increased sense of individualised and/or social self.

### **"Tombs are the Clothes of the Dead": Late Woodland and Mississippian Textile Use at Aztalan**

**John D. Richards** (University of Wisconsin-Milwaukee, Milwaukee), **Teresa M. Johnsen** (University of Wisconsin-Milwaukee, Milwaukee)

The Aztalan site in southeast Wisconsin represents the remains of a hybrid community of Late Woodland and Mississippian settlers. The presence of these two groups has long been recognized but, recent research suggests that the community may have been even more ethnically and culturally diverse. This is evident in a complex mortuary program at the site. Sometime

between A.D. 1050 and 1100, the bodies of ten people and the bones of an eleventh were placed in a semi-subterranean structure dug into the second stage of a platform mound. Prior to the interment, the interior of the structure was lined with interlaced matting woven from locally available bulrush fronds. The dead were placed on these mats and the structure was then burned and capped by the third and final stage of the mound. Charred fragments recovered from this feature suggest that a variety of different textiles were present in the structure in addition to the matting. One of these fragments suggests a small bag, but the remaining pieces may represent items of clothing, personal adornment, or burial shrouds. This paper discusses the implications of this assemblage for understanding the social context of fabric and textile production and use at the site.

### **Making Spiral Decorations as an Expression of Identity**

**Riina Rammo** (University of Tartu, Tartu)

The only source for information about clothing and adornment in 12th-13th century Estonia is archaeological evidence, more closely the material from inhumation graves. This fact means automatically dealing with funerary clothing and attire. As the textiles have been preserved badly, the main source for festive clothing of women is decorations made of small spiral tubes of copper alloy and woollen yarns. These decorations were made on different levels: from special craft for trade until clearly homemade patterns. In some cases even 'handwriting' of a master can be pointed out. Not only is the mastery itself important. By means of these decorations also the identity of different communities was expressed. Finds of three cemeteries (12th-13th cc) in Northern part of Estonia have been studied. Although the spiral decorations from there are very similar to each other by means of technical traits and usage on clothing, some peculiar details (e.g. ending patterns) indicate different village communities and technical traditions.

### **Dress as Social Relations – The Interpretation of Bushman Dress in a Colonial World**

**Vibeke M. Viestad** (Department of Archaeology, Conservation and History, University of Oslo, Oslo)

In this paper I will present the main findings of my doctoral research on the material culture of Bushman dress. First I will give a short description of the Bushman dress of Southern Africa, as collected by Dorothea Bleek and Dr Louis Fourie in the beginning of the 20th century. My focus will be on how the two collections present us with a conflicting image of "the typical Bushman" on the one hand and distinct material variations between different groups on the other. I will proceed to seek a more nuanced understanding of /Xam dress, in particular, as perceived through the texts of their oral literature, recorded in the Bleek and Lloyd Archive from the end of the 19th century. Considering aspects of /Xam personhood, as interpreted from the /Xam narratives, I will argue that the practice of dress, among the colonial /Xam of the Northern Cape, was a practice of social relations. Interpreting the material culture of dress "as told", I will outline the /Xam dress as a manifestation of - the creation and maintenance of –several aspects of social relations, between human and animals as well as between humans themselves.

### **Strategies for Ornament Survival: Re-Use, Re-Cycling, and Re-Contextualizing Neolithic Jewellery at Dispilio, Greece**

**Fotis Ifantidis** (Aristotle University of Thessaloniki, Thessaloniki)

Repairing and re-cycling actions, when traceable in the archaeological record, can offer valuable information on the curriculum vitae of artefacts. Personal ornaments constitute a corpus where these practices, applied for the prolongation of the life of a damaged or heavily used jewel, and/or its transformation into a different "type", provide insights into the meanings and values surrounding adornment -a practice tightly connected to the human body, in a physical and social sense. This paper focuses on the ornament assemblage of Dispilio, a lakeside Neolithic settlement in Northwest Greece, where a substantial number of pendants, annulets, and beads show signs of these "strategies for (ornament) survival". Use-wear, chaîne opératoire, and depositional analysis help us understand the layered histories of re-used bone, marble, and shell bracelets and pendants. Sometimes we can see histories unfolding over lengthy periods while in other cases we can glimpse brief moments only. Additionally, other finds highlight the challenges we face in our attempts to re-contextualize these ornaments in a contemporary setting, e.g. conservation/restoration or museum exhibition.

### **Impotent, Able Bodied, or Idle: Untangling the Poor Buried in the Milwaukee County Poor Farm Cemetery**

**Patricia B. Richards** (University of Wisconsin-Milwaukee, Milwaukee)

Historical Archaeology has recognized the impact the advent of mass production and distribution of goods had on the material culture of the 19th and early 20th century. Archaeological recovery at the late 19th and early 20th century Milwaukee County Poor Farm Cemetery in 1991 and 1992 produced the remains of 1649 individuals and associated material culture. An analysis of the grave goods from the Cemetery identified distinct classes of poor based on variability in material culture. Three categories of individuals were detected through a combined analysis of grave goods and historical documents: 1) those who died at one of the various county institutions; 2) those unidentified at the time of their burial (often victims of accidents, homicides, or suicides), and 3) those who had relatives involved in the burial but without financial means to ar-

range for burial elsewhere. Excavations at the Milwaukee County Poor Farm Cemetery during the summer of 2013 resulted in the recovery of 635 burials and a remarkable variety of clothing and textiles including burial shrouds, shirts, suits, and jackets. This paper examines these items within the three defined categories of individuals buried at the cemetery using the contextual framework of class, consumerism and identity.



### **T03S010 - MEDIEVAL CHRISTIANITY AND TECHNOLOGY: IMPACTS AND TRANSFORMATIONS IN EAST AND WEST**

**Organizers:** Anna Leone (Department of Archaeology, Durham University, Durham), Sophie Hueglin (Archaeologische Bodenforschung Basel-Stadt, Basel), Sarah Semple (Durham University, Durham)

Recent findings from England, achieved using innovative combined methods, have contributed a new understanding of the way in which some of the very first Christian stone buildings were conceived and created in early medieval England. These early churches exemplify the ways in which Christianity changed technologies in parts of Europe in the first millennium AD. This session brings together papers from across Europe that present new insights into connections between technology, the Christian church and royal and ecclesiastical power. We investigate the sourcing and working of stone for early religious buildings. The recycling of Roman stone and spolia was a widespread aspect of building style, and new techniques for the decorative arts were also introduced to areas outside the Byzantine world, eg. coloured window glass, mortar and stone sculpture. This session assesses the impacts of these technological changes, placing emphasis on the functional, technological and ideological motivations for these transformative processes. 7 speakers have agreed covering aspects of technology and reuse in Libya, Greece, Northern Spain, the UK and France/Switzerland.

## **ORAL PRESENTATIONS**

### **The Construction of Hispanic Churches in the Early Middle Ages (8th-10th centuries). Technology in Context** **María de los Ángeles Utrero Agudo** (Instituto de Historia, CSIC, Madrid)

This paper discusses how Hispanic masonry churches were planned and constructed following the Islamic conquest of the Iberian Peninsula in 711, during the 8th-10th centuries. The arguments and outcomes are based on the archaeological analysis of these currently standing structures. As a manufactured product, this architecture is both the result of a building process, involving this a sequence of staged and related transformational activities (from the supply of materials up to their use in the construction, from the planning of the building up to its final use), and of a precise building technology, which encompassed practical knowledge of the materials, artefacts and techniques employed by artisans to carry out their work. Combining new and reused material, employing mortar, producing bricks and building masonry vaults are among the most innovative activities to be found in this period.

### **Practical and Symbolic Reuse of the Past in the Early Medieval Churches of Galicia (NW Spain)**

**José Carlos Sánchez-Pardo** (University of Santiago de Compostela/University College London, Santiago de Compostela)

The aim of this presentation is to explore the ways by which early medieval churches intentionally reused the past in Galicia (NW Spain). Three factors will be taken in consideration. Firstly, I will focus on the practical reasons for the use of building materials in this period in relation to the economic and technical context. Secondly, I will explore how the Christianization process in this region adopted and transformed old sacred spaces (prehistoric cult places as fountains, barrows...) when constructing churches. Finally, I will discuss the use of spolia (mainly roman stonework and reliefs) as a mechanism of social and political legitimization in churches. The final objective of this short presentation is to offer a first synthetic picture of the reuse of the past in early medieval Galicia in order to promote enriching comparisons and to debate it into the wider European scenario.

### **Between East and West: Early Christian Architecture in Macedonia**

**Ochal-Czarnowicz Agnieszka** (Jagiellonian University, Kraków)

Macedonia in early Christian times stood between East and West. As it was part of the civic organization of Illyricum, the Archbishop of Thessalonika was officially under the Pope at Rome, although it is clear that the geographical proximity to the Patriarch at Constantinople made his allegiance a matter of convenience. It is almost certain that the liturgy in Macedonia was in Greek, rather than in Latin, as was the case in most of the regions under Papal jurisdiction. The local liturgy itself, however, was not a simple manifestation of Constantinopolitan rites. A number of vital differences existed between the design and furnishing of Macedonian structures and those of Constantinople. R. Krauthimer (1986, 128-129) points out the nature of Macedonian church architecture as a mixture of typical eastern elements present in basilicas built in Constantinople and in the Aegean Islands but also those adapted from the West (Rome, Milan). He considers introduction of transept a

result of Rome influence, while the eastern components included atrium, narthex, pulpit and Ionic impost capitals. Taking R. Krauthimer findings as a start point I want to examine the early Christian architecture of Macedonia in context of the local liturgy and common beliefs. It seems that the Greek rituals had much more direct impact upon the Macedonian church architecture, which consequently followed mainly Constantinople patterns. As a Roman import, transept appears quite rarely. Atrium and narthex on the other hand are present in the majority of Macedonian basilicas.

### **Spolia in Late Antique Cyprus: The Evidence from the Early Christian Basilicas**

**Panayiotis Panayides** (Durham University, Durham)

The identification of spolia in Early Christian basilicas in Cyprus highlights the involvement of the Church in the process but also brings up questions on its role in the practice of spoliation and allows further discussions on any possible meanings of this practice. By drawing focus on the architecture of two early Christian basilicas in Cyprus, this paper discusses that the issue of re-use was primarily motivated by economic forces and that the church builders valued the materials on the basis of their usefulness, rather than by considering any ideological implications arising from such re-use.

### **Marbles and Spolia in Libya: Urban and Rural Churches**

**Anna Leone** (Durham University, Durham)

The paper considers comparatively the evidence of spolia and marble decoration from urban and rural churches in Late Antique (4th to 7th century) Tripolitania (north West Libya). The focus will be primarily on the marble decorations in urban areas versus the locally sculpted tone decorations in rural contexts. By comparing and contrasting the different type of monuments, the paper aims at identifying the relationship between economic issues and religious traditions. The type of decoration, reuse and building techniques offer some insights on the patronage in both urban and rural context as well as on the impact of Christianization of coastal/urban settlements and of the rural ones.

### **Re-Building Rome: The Early Medieval Monasteries of Wearmouth and Jarrow, UK**

**Sam Turner** (School for History, Classics and Archaeology, Newcastle University, Newcastle), **Sarah Semple** (Durham University, Durham)

This paper explores the recent results from a re-assessment of the standing fabric of the pre-Conquest churches at Wearmouth and Jarrow. Considered 'one monastery in two places', these fragmentary, yet surviving structures testify to the innovative architectural traditions of the early Northumbrian church. A new survey of the standing fabric combined with petrological examination of the stonework provides novel insights into the sourcing and construction of each in the late 7th/8th centuries and the varied use of recycled Roman stonework and architectural features at each location, as well as the exploitation and use of fresh stone from local quarries.

### **Mechanical Mortar Mixers and the Reintroduction of Stone Building in Medieval Europe**

**Sophie Hueglin** (School for Historical Studies, Newcastle University, Newcastle)

Traveling craftsmen and specialist builders like the "magistri commacini" helped to reinvent stone and mortar in ecclesiastical and secular architecture between 700 and 1100. Though mentioned as early as in the 8th-century *Leges Langobardorum* little is known of them and even the meaning of their name's suffix is debated whether to signify: "Masters from Como" or "Masters with machines". Archaeological remains like mechanical mortar mixers and certain kinds of styli are thought to relate to their presence. The mortar mixers have a wide distribution which stretches from Naples in the South to beyond Newcastle in the North. The research on this mechanical device is but a starting point for the project RESTOMO, which will investigate movements, materials, methods and motivations of builders and patrons in medieval Europe. Three regions – the North of England, the Upper Rhine Valley and Tuscany – are going to be the focus of this landscape archaeological project, which is funded by a Marie Curie-fellowship of the European Union.

### **Special Decorated Bronze Styli of the High Middle Ages - Writing Equipment and Brandmark**

**Markus Marquart** (Museen der Stadt Aschaffenburg, Aschaffenburg)

Starting with a single find of a stylus with a special decoration in Aschaffenburg the research for comparable pieces lead to some different comprehensions: First, that the knowledge about medieval styli is not as elaborated as expected. Then, that in the regions, in history belonging to the Roman Empire, all styli seem to vanish in the pot of roman metal equipment, even the medieval samples. And finally these styli arouse the suspicion, that their appearance at ecclesiastical sites from the Alps to Sweden and even the Baltic – mostly correlated with building sites of cathedrals and abbeys – marks the way and working places of special craftsmen for masonry and architecture. These styli themselves seem not to be used only for writing on wax-tablets or for marking stones for masonry. Like an ID card they show the intention to verify their owners with a brandmark as specialists for building with stone and bricks, as members of a kind of specialized school or construction-trust of the 12th-13th century, maybe with origins in northern Italy.

## Spolia from the Island of Murano, Venice

**Tadeusz Baranowski** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Università Ca' Foscari Venezia, Venice)

Classic examples we could mention the use of whole parts of Greek temples used in the Christian churches in Sicily, where they have the same function as the original use. Also elements of early Christian monuments were often used in later buildings. In present paper we would like to present a less obvious case of use the elements from the Early Medieval church in the building dated to the XI – XII century in the architectural complex of St Mary and Donato on the island of Murano in Venetia. It is particularly difficult in Venetia to distinguish, whether the spolia and rubbles constitute the part of the original structure built in this place or they were brought from the other place to strengthen the land on the island. During Polish-Italian excavations at Murano island the relics of baptistery's atrium have been found. One of the column basis is beautifully decorated fragment of re-used Early-Christian plutea. History of the building was completed in 1719, when elements of the XI/XII century sacred complex have been sold by one of the Venetian bishops as spolia.



## T03S011 - OUT OF THE DARK — THE DAWN OF POTTERS CRAFTSMANSHIP

**Organizers: Ingmar Franz** (Institute for Prehistoric Archaeology at Freiburg University, Freiburg), **Duygu Tarkan** (Department of Prehistoric Archaeology at Istanbul University, Istanbul)

In this session we want to discuss the technological and social setups of the processes which led during the early phase of pottery technology to the emergence of potters craftsmanship. Assuming that analogue developments of “Neolithic” pottery technology can be observed in different regions of the Near East and Europe, the session addresses all researchers who deal with pottery in the pre- and early craftsmanship stage. The session will discuss changes and the persistence in pottery technology (used raw materials and applied manufacturing techniques), in style (morphology and decoration), in quantity, and in usage of pottery in a pan-European and Near Eastern framework ranging from ca. 7,000-4,000 cal BC. It will scrutinize the different stages of pottery craftsmanship from the experimental phase in the beginning to the development of specialized craftsmanship and mass production. Concepts of and approaches to study ‘innovation’ and ‘imitation’ as well ‘import’ and ‘knowledge transfer’ will be discussed and illustrated with case studies from across the Near East and Europe in order to better understand the impetus, process and meaning of the pottery production in early farming societies.

## ORAL PRESENTATIONS

### Introductory Talk: Out of the Dark – The Dawn of Potters Craftsmanship

**Ingmar Franz** (Institute for Prehistoric Archaeology at Freiburg University, Freiburg), **Duygu Tarkan** (Department of Prehistoric Archaeology at Istanbul University, Istanbul)

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### Early Pottery and Its First Developments in Northern Mesopotamia: The Role of Import and Imitation

**Marie Le Mièr** (Archéorient, UMR 5133 CNRS, Lyon)

For most of the Near East our knowledge concerning the earliest pottery is still very limited. Nevertheless, thanks to the research of the last fifteen years in Northern Mesopotamia, a large group of early pottery sites have been discovered, providing a fairly consistent set of data. These new data allow new insights into the first developments of pottery craftsmanship in this region but also raise questions concerning changes and persistence. Import and imitation will be particularly discussed.

### Three Centers of Pottery Manufacture Forming in the Volga-Kama Neolithic

**Irina Vassilieva** (Volga Region Academy of the Humanities in Samara, Samara), **Aleksandr Vybornov** (Samara State Academy of Social Sciences and Humanities, Samara)

The appearance of pottery making is regarded by Russian researchers as the beginning of the Neolithic in the Eastern Europe. This research aims to resolve the following issues: 1) the beginning of the earliest pottery in Volga-Kama region;



2) the geographical demarcation of early pottery traditions; 3) the determination of chronological frames of this process using the pottery radiocarbon dating. The author argued that the pre-pottery period existed in the centers where pottery originated from. At that time natural clay-like plastic materials were used to make vessels. The examination of the earliest pottery from Volga-Kama region allowed to identify three types of materials: silt, silty clay and clay. Based on the analysis of plastic material types three areas of Early Neolithic pottery traditions were singled out: 1) the area of the most ancient pottery made from silt: steppe cultures in the Caspian Sea area (6700 BC ) 2) the area of forest-steppe culture traditions in Middle Povolzhye (6500 BC) 3) forest traditions in Kama area. Here it was typical to use natural clays, smashed when being in dry form and mixed in approximately the same ratio with chamotte (5700 BC).

### **Pottery as a Transfer of Idea and Meanings in the Early Agricultural Societies in the Upper Vistula River Basin - The Micro- and Macroscopic Research -**

**Anna Rauba-Bukowska** (Rzeszow University, Rzeszow), **Kalina Juszczyk** (Rzeszow University, Rzeszow), **Magdalena Moskal-del Hoyo** (Rzeszow University, Rzeszow), **Sławomir Kadrow** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw)

In the Neolithic period, pottery functioned in two different aspects. On the one hand, it enabled keeping and storing food, and it was used to cook and serve dishes. On the other hand, it fulfilled numerous socio-cultural functions, most of all symbolic ones. The ability of the pottery production using proper techniques and the knowledge how to choose and prepare raw material reflects the technological know-how of Neolithic societies. In recent years numerous archaeological studies were performed, including about 400 thin sections and chemical analyses of vessels dated to early Neolithic cultures in Poland. These analyses allowed us to determine basic technological groups and showed a differentiation of raw materials. This recognition of sediments is essential for reconstruction of local contacts between settlements and far-reaching contacts between different cultures (e.g. in the inner Carpathian region). For comparison purposes, the study included a small art object made of clay and samples of raw materials. In addition, examinations were performed to identify organic material in the ceramic fabric. In order to illustrate the most interesting artifacts 3D-models were made using a 3D scanner and 3D modeling software.

### **Societal Changes and the Development of New Pottery Signatures. Çukuriçi Höyük at the Transition of the Anatolian Neolithic to Chalcolithic**

**Lisa Peloscsek** (ÖAI, Vienna), **Barbara Horejs** (OREA, Vienna)

On the mound Çukuriçi Höyük in Western Anatolia stratigraphical sequences have been preserved, evidently documenting continuity in settlement patterns at the turn of the Neolithic to the Chalcolithic period. Besides the architectural record, the detailed analysis of ceramics is crucial as they still might indicate slight changes in prehistoric socio-cultural structures, referring to the interaction of humans with the natural landscape and available resources. By comparing the shape repertoire of ceramics of both periods it will be highlighted to which extent traditions in consumption patterns and vessel functionality had been pertained. In order to test for technological transfers, petrographic and geochemical methods had been applied. The compositional characterisation of the pottery allows to illustrate, if the same local clay mines had been exploited diachronically or rather specific vessel types from now on intentionally had been prepared differently. Additionally, ceramic fabrics not being compatible with the local geology have to be monitored in order to reconstruct exchange systems within Anatolia and the Aegean Sea region. New pottery signatures first appearing in the Chalcolithic period and more prominently occurring in the fourth Millennium BC, have to be discussed in the framework of the local geology, pyrotechnical workshop organisation and foreign influences.

### **Dark Painted Ceramics Dated Back to 5000 B.C. from West Çatalhöyük**

**Ramazan Gündüz** (Albert-Ludwigs Universität, Freiburg)

In this study dark painted ceramics that are revealed from Çatalhöyük and are generally dated back to 6000 B.C. will be discussed. Çatalhöyük is in Central Anatolia located at 52km southeast of Konya and at 11 km north of Çumra province. In this study, at first, paintings and primer embellishments on ceramics were examined. After that, their relationship with similar periods in terms of form and paste was conducted by using analogy method. Dark painted ceramics at west Çatalhöyük were uncovered by James Mellaart in 1961. The most found embellishments on those ceramics are the ones that are especially like woven motifs, subtle and complex lines, scans ornamentation. Using light brown, dark brown and pale black on those scan ornamentations was new for that period. On the inside and outside of bowls and on the outside and mouth of pots there are clear primer in the shape of a thick band. Dark motifs on white primer were typical for that era. The pulp of this group is pinkish red or buff colour. Consequently, Dark Painted West Çatalhöyük Ceramics differ from previous periods' ceramics in terms of painting decoration and primer that were used.



### **Different Ways of Crafting a Pot: Variation in the Techniques of Neolithic Potters in Northern Greece**

**Dushka Urem-Kotsou** (Demokritos University of Thrace, Komotini), **Trisevgeni Papadakou** (Aristotle University of Thessaloniki, Thessaloniki), **Anna Papaioannou** (Aristotle University of Thessaloniki, Thessaloniki), **Teresa Silva** (Demokritos University of Thrace, Komotini), **Gazmend Elezi** (Aristotle University of Thessaloniki, Thessaloniki), **Niki Saridaki** (Thessaloniki Aristotle University of Thessaloniki), **Anastasia Dimoula** (Aristotle University of Thessaloniki, Thessaloniki), **Kostas Kotsakis** (Aristotle University of Thessaloniki, Thessaloniki)

During the recently intensified research on the Neolithic of Greece the archaeological discourse focussed on various issues related to continuity and change in pottery technology and its role in social transformation processes. As part of a large-scale research project about the Neolithic in northern Greece, we will be able to explore the characteristics of pottery production in a comparative study among different sites. In this paper we will follow the archaeological evidence of ceramic production from the early presence of pottery in northern Greece to its later, perhaps more established stages in the Late Neolithic. Our primary focus is on various aspects of technology: building techniques, surface treatment, firing, etc. Petrographic analyses will also be utilized to examine the relationship of the potters with the raw materials. The analysis of the data involves two questions: The first question explores the ways that the variability in techniques within the synchronic but disparate ceramic assemblages may give insights on the differing paths towards craftsmanship. The second question focuses on the diachronic change and continuity of the pottery technologies employed in the region to link our work to the general discourse on specialization and the nature of ceramic production.

### **The Story of Clay and Memories of Pots... An Interdisciplinary Approach of Potter's Craftsmanship in Balkan Eneolithic**

**Theodor Ignat** (Museum of Bucharest, Bucharest), **Anca Luca** (Faculty of Geology and Geophysics, Bucharest), **Marin Şecleman** (Faculty of Geology and Geophysics, Bucharest), **Daniela Dimofte** (Faculty of Geology and Geophysics, Bucharest), **Cătălin Lazăr** (National History Museum of Romania, Bucharest)

Local production or import? This is a long debate among archaeologists that we have tried to address through a series of physic-chemical studies. Thus we have analyzed several shards from two dwellings from the Sultana-Malu Roşu tell settlement (Eneolithic, Gumelniţa culture) and multiple clay samples from around the settlement. We performed microscopic analyses on thin sections and X-ray diffraction, in order to obtain chemical and petrological information about our samples. The sampling covered the whole spectrum of vessels, from fine to coarse ware, from painted to unpainted etc. The main goal was to be able to compare the results from the shards with those from the clay samples, but also to prove the local origin of the analysed pottery.

### **From the Product to the Craftsman. The Emergence of the "Profession" of Potter in the Late Chalcolithic in Northern Mesopotamia**

**Johnny Samuele Baldi** (IFPO, Paris)

This paper presents an anthropological reading of the assemblage of the north Mesopotamian site of Tell Fares al-Sharqi (Syria) between Late Ubaid and Late Chalcolithic 1-2 periods. The analysis of the ceramic differences in terms of traditions and chaînes opératoires allows an interpretative bridge between particular ways of manufacture and specific social groups. It seems that here the production system moves from a household model during the Ubaid period to a more specialized one during the Late Chalcolithic 2. The concept of "specialization" will be discussed in a neutral sense, as an undertaking by some specific social entities of a production previously carried out by all the groups of a community. The existence of a few ceramic traditions in the early 4th millennium, the appearance of the wheel-coiling technique, as well as the so-called "potters marks" can imply that only some families carried out a production dedicated to the entire lineage which they belonged to. It shows the emergence of a more pronounced specialization and a more complex social organization, where part-time specialists (as potters) appear for the first time as a structural component of the production system.

### **Production, Distribution and Function of Northern Central European Funnel Beaker Grave Pottery**

**Luise Lorenz** (Kiel University, Kiel)

In the project „Communication Structures“ of the Priority Program 1400 of the German Research Foundation „Early monumentality and social differentiation“, a standardized data collection and metrical and typological description of several thousands of ceramic pots and their decoration from Funnel Beaker megalithic and non-megalithic graves in Northern Central Europe could be carried out. Based on that, it is possible to describe, analyze and interpret carefully the standardization and diversity in pottery shape and decoration all over the investigation area and to draw conclusions on the processes of production, distribution and function of pottery in grave contexts in the 4th Millennium BC. Aspects of individuality and collectivity in life and work of the probably female potters, as well as the burying groups become visible. Establishing a fine typo-chronology for the material allows to differentiate time slices and to shed light on the statics and dynamics of communication structures and spheres of change and tradition.

## Places for Firing in the Northern European Early Neolithic

**Tobias Torfing** (Kiel University, Kiel)

In this paper, I will discuss features that could be the remains of structures related to the firing process of pottery in the Funnel Beaker Culture. Several such features have been proposed through the years, but researchers working with pottery as craft in the region have often claimed that only open firing was done during the Neolithic, and that no “ovens” or “kilns” were used – because it was not needed. With the help of all published, as well as new unpublished sites, I will interpret a series of features as structures for firing. The paper will present the first comprehensive evaluation of possible firing structures and their contexts. The structures not only share many constructional traits, they also share something else: They are not found at the settlements, but at large central causewayed enclosures. These enclosures did not include permanent settlements, but were used temporarily at special communal or ritual occasions. It will be suggested that communal production of pottery for rituals and feasting was made as cooperation between several households at the enclosures. This provides a possibility for knowledge exchange and creation of a potters’ community.

## Potters Craftsmanship – In a Peripheral Point of View

**Merethe Schifter Bagge** (Skanderborg Museum, Skanderborg)

Changes in society are influenced by technological development and vice versa. Technological developments in ceramics in the Neolithic society are a good example. This paper seeks to address the questions about technological development seen from a peripheral point of view - from the Danish area. Here the development is delayed several thousand years. Experiments first appear 4600 BC in Denmark. Danish clay withstand up to 900 degrees Celsius, and burn for ceramics at 600 - 800, this is easily achieved on bonfires. These two forms have been the usual method of producing ceramics for long periods of prehistoric Denmark. It takes quite a long time before there is evidence of regular ovens and specialist production in Denmark. However, there is one exception in the middle Neolithic period (3300-2800 BC) where they appear in causewayed enclosures. Here, some material indicates that they may have been travellers who used ovens for burning a specialized very fine ceramic which were sacrificed at these sites. This practice does not continue, it declines and sign of specialized production does not reappear again before the late Bronze Age (700-500 BC). Why does the technological development stop and what starts it again?

## POSTERS

### Variability of the LNK Pottery Technology at the Site of Bylany

**Klara Neumannova** (Institute of Archaeology CAS Prague, University of Hradec Kralove, Prague & Kralove), **Petr Kvetina** (Institute of Archaeology CAS Prague, University of Hradec Kralove, Prague & Kralove), **Richard Ther** (Institute of Archaeology CAS Prague, University of Hradec Kralove, Prague & Kralove)

This poster presents preliminary results of the first level of analysis - the macroscopic study at the intra-site scale. It is based on the large Neolithic settlement site of Bylany in Bohemia (distr. Kutna Hora), which represents an exceptional archaeological assemblage for the research of pottery technology variability. The long-term systematic excavations, together with the survey of the surrounding areas resulted in the compilation of a huge body of archaeological data. The macroscopic analysis concerns the variability of the production process techniques within the assemblage with the aim to determine particular clusters of technological traditions. The fabrication marks are observed (by naked eye) on the surfaces and the edges of the pottery fragments. The inclusions and other characteristics of the paste are defined by qualitative visual criteria. The techniques of primary and secondary forming, surface treatment, and decoration is identified using diagnostic traces. The technological groups will be verified by microscopic methods (petrographic composition) and other archaeometric analyses. Sampling is pursued with regard to represent the general dispositions of the assemblage comprising the formal, chronological and spatial attributes. Technological variability, chronological diversity and spatial patterning correlations of settlement features will be searched.

### Early Neolithic Ceramic Traditions of the Population of the Middle Trans-Ural

**Zyryanova Svetlana** (Ural Federal University, Yekaterinburg)

In accordance with the scientific tradition the Middle Trans-Ural Neolithization is connected with the appearance of the pottery as a main sign. The start this process dates back to the second half of 4th millennium BC (uncalibrated) at the territory. Early Neolithic stage associated with Koshkinskaiy and Kozlovskaja archaeological culture (second half of 6th - 5th millennium BC). The remarkable feature is absence of the primitive stages of ceramics production in the area (by the Typological and Technological analysis). The pottery production technology was already formed then it was adopted by the Middle Trans-Urals population. The evidence of this are: a stable molding composition, morphology, ornamentation technique, ornamental motifs and compositions. The staging of the collections (comprehensive and comparative analysis) allows us to conclude that the origins of traditions probably may be found in the Northern Caspian and the Eastern Caspian.



## T03S012 - THE TECHNOLOGY OF THINGS: MATERIAL TRANSFORMATIONS IN PREHISTORY

**Organizers:** Emily Miller Bonney (Liberal Studies, California State University-Fullerton, Fullerton), Athena Hadji (Mediterranean Studies Department, University of the Aegean, Athens)

Changes in the technology and consequent character of non-elite artifacts and architecture traditionally are construed as reflecting changes at a higher level. However, rejection of Cartesian dualism in recent theoretical literature and revisions to our understanding of how the mind works suggest that the most mundane material remains are not merely passive products but active participants and moreover agents in the cultural fabric of past societies. Scholars such as Knappett, Malafouris, Hodder, Ingold and Latour have probed the impact of material culture and the socio-cultural aspects of the materiality of things. Yet we are far from consensus in articulating the precise character of that engagement and much archaeological literature has not taken notice of these theoretical developments. This session invites reflections on the relationship between material culture and human institutions and practices. Palaces and monuments provide powerful evidence for significant shifts, but we look to the mundane and the ordinary-- houses, pottery, tools, the tombs of the non-elite. Participants are invited to re-examine the range of archaeological material within whatever framework - from Actor Network to Entanglement - seems most appropriate to the material under study. Submissions from all areas of prehistory are welcome.

### ORAL PRESENTATIONS

#### Use Life History and Archaeological Thinking

**Adnan Baysal** (Bülent Ecevit University, Zonguldak)

The analysis of the everyday life objects perceived in many ways. Especially, when all these objects coming from the past and belong to those past communities which are unknown entities and meets today's elaborate thinking and theories goes beyond unthinkable sometimes. This talk revolves around how the use life history of objects makes a difference (with or without contribution of technologies) and how the objects can be seen in their social context of their different use stages, means of these objects may change and/or communication with or over these objects. The communication over these changing objects during their use life can also change their social part taking in everyday life. This talk will be aimed to explain the use life of objects as a constant and dynamic change and attached other things those objects also changing such as meanings, communication, communicated subjects or levels.

#### Making Contexts through Material Properties: From Multimedia Work Areas to Material Transformations in Later Neolithic and Early Bronze Age in the Balkans, Greece, and the Aegean

**Petya Hristova** (Independent Scholar, Menlo Park)

Focusing on what things do instead of on series of recontextualization and meaning (Knappett, Malafouris and Tomkins 2010), this paper considers changes in technology of pottery decoration in settlement contexts of multimedia work areas (Krivodol in northwest Bulgaria and Mandalo in central Macedonia in Greece) and reflects on how things not only fit in traditions and influence innovations but also make contexts in interaction through material properties, mixtures, and surface effects (N.Thomas 2002). Mixing materials and techniques as well as decorative patterns in search for a particular visual effect imbues familiar shapes with transformative material agency in creating intercultural contexts within various social milieux. In their turn such contexts might be seen as conduits of technological advances in other media (for example, the evidence for possibly skeuomorphic silvering from Poros in Crete, Mandalo in Macedonia, west Black Sea in Bulgaria). The correlation between archaeological periodization based on technological change and human time however does not produce a uniform cultural change and a common pattern discernible all over the place. Rather, it hints at a long-term process of cultural interaction reflected in a greater variability in the archaeological record.

#### Ancient Ceramic Technology and Its Social Meaning: The Bronze Age Nuragic Society of Sardinia

**Maria Giuseppina Gradoli** (University of Leicester, Leicester)

The present abstract is based on my current PhD research 'Dynamic Social Changes and Identity. A petrological study of Bronze - Iron Age pottery from Sardinian Nuraghi' at the University of Leicester (UK) with the aim of studying the sequence of social changes anticipating and accompanying the first appearance of \*Nuraghi towers during the Middle Bronze Age (1600 BC) and their later complexity during the Recent and Final Bronze Age (around 1300-1000 BC). After having set a larger theoretical context (based on both the Social and the Physical Sciences) addressing the more general issues on the relationship between material culture and society on the one hand, and ceramic variability and change on the other hand, the study develops using 'ceramic petrology', the concept of 'chaîne opératoire', the raw material provenance analysis and experimental archaeology to investigate whether observable architectural changes were accompanied by similar ones in the way pottery was manufactured, especially during the most important transitional periods. \*Nuraghi are truncated high round towers, unique of Sardinia, built of large blocks of local rock set without mortar in regular horizontal rows, and roofed by corbelled vaults.

## **Technological Innovation in the Face of Standardization: The Fine Grey Ware Pyxis as an Agent for Change**

**Emily Miller Bonney** (California State University-Fullerton, Fullerton)

Analyses of pottery rely on technological distinctions - e.g. type of temper, color of biscuit, or manner of decoration - to establish chronological frameworks. These studies are grounded on the assumption that shifts in ceramic styles are caused by or reflect social or economic development. Viewed in the aggregate the evolution of ceramic traditions acquires a teleological gloss, an element in the increase in social complexity or collapse. This approach has predominated in studies of Early Bronze Age Crete where pottery constitutes the primary cultural product available to the archaeologist. But according to Material Engagement Theory the relationship between objects and people is more dynamic and symmetrical. This paper considers the appearance of the Fine Grey Ware pyxis at Lebena Papoura, Lebena Yerokambos and Koumasa in Early Minoan IIA, ca. 2600 BCE within this theoretical framework. The technological innovations embodied in those vessels, produced at a time when ceramic production otherwise appears to be moving toward greater standardization, indicates that these pyxides did not merely reflect social change. Rather the pyxides constituted an agent in the process by which relationships between the living and the dead were reconfigured and early communities centered on the tombs became refocused on the first substantial settlements.

## **Metaphors and Semiotics in the Material Culture of Early Urban Societies: A Mycenaean Case Study**

**Marcus Bajema** (Leiden University, Leiden)

One recent approach that sought to explore the relationship between early humans and material culture was developed in Clive Gamble's 2007 book *Origins and revolutions*. The key to this approach was based on the concept material metaphors derived from the human body, in particular those of instruments and containers. Using this theory, Gamble was able to provide an account of human prehistory from early hominid forms through the development of agriculture and architectural forms. Since then, others have also discussed the container metaphor for Aegean Bronze Age pottery. In this paper, I explore the ways in which Gamble's approach can be extended to early urban societies, focusing specifically on the art and material culture of Mycenaean Greece. One problem with doing so is that to look at this material only from the standpoint of body-derived metaphors would be too limited an approach. Given the presence of complex iconography, a complementary semiotic approach is also required. Here, I will consider how another metaphor, that of surfaces as replicated across different material forms, can help to bridge this gap. In so doing, both Gamble's framework and semiotics could be used productively to understand the material transformation presented by early urban societies.

## **Let Me Do the Talking: Discussing Early Bronze Age Aegean Metallurgy on Their Behalf**

**Athena Hadji** (University of the Aegean, Athens)

This paper explores the ways in which modern scholarship has discussed EBA Aegean metallurgy on the behalf of its practitioners. The use of words as interpretative means in archaeology often goes unscrutinized, although it is certainly accompanied by its own set of issues. Archaeology is practiced in the third dimension and conventionally interprets acts belonging to the fourth dimension (space-time), in the second, through primarily visual means, whether these are printed words or images, diagrams etc. The preoccupation of archaeology with technology is well rooted in its first formulation as an academic discipline in 19th century Europe under the increasing influence of the Industrial Revolution. This went along with the priority given to technical systems and a view of technology as a vehicle and simultaneously the culmination of social change. The criterion for reconstructing the prehistoric past in an orderly manner in the third millennium B.C. Aegean in this case was the advent of metallurgical technology. The predominance given to early metallurgical advancements as chronological, but also as cultural, markers for Aegean prehistory and its implications for archaeological interpretation and understanding are examined here through the correlation between archaeological periodization based on technological advancements and human time.

## **Technology, Networks and Complexity: A Conceptual Framework for Metal Artefacts Analysis in the Lower Danube Region**

**Matau Florica** (Alexandru Ioan Cuza University of Iași, Iași)

This paper presents a conceptual framework for the examination of the bronze artefacts deposition at the end of the Bronze Age and the beginning of the Iron Age in the Lower Danube region based on a complex actor-network approach. The agents and networks involved in the metal artefacts deposition can be seen as constituents of structures that perform complex processes. These deposition structures interact, forming new more complex structures and networks. In order to understand these metal artefacts deposition structures and networks, the technology for the constituent objects of hoards will be compared. Subsequently, a spatial and contextual analysis will provide a starting point for the interpretation of metalwork deposition as form of being in the world from the perspective of cultural landscapes. Insights from actor network theory

can be combined with notions of scales of complexity to understand the way in which Late Bronze Age and Early Iron Age communities seek to shape these structures and systems, whilst at the same time being recursively shaped by them in their strategies and actions. Better understanding of the interactions between actors and the emergent qualities of the networks they form can improve our comprehension of the complex socio-spatial phenomena of the metal artefacts deposition.

### **Engagement and Transformation of Prehistoric Levantine Neolithic Ground Stone Tools through Repurposing and Deposition**

**Philipp M. Rassmann** (BMCC, City University of New York, New York)

Though the complexity of artifact production has long been recognized in archaeological research, little to no adequate attention has been given to the totality of past people's engagement of tools. Close examination of ground stone tool production at several Early and Late Neolithic villages of the Levant provides insights into such a complex relationship. There, despite the ordinariness of the tools, a wide range of reduction sequences and use-life end points warrant the interpretation that the makers and users had an active engagement with the material that facilitated the tools representation as active agents in the cultural fabric. Employing the *chaîne opératoire* approach this paper develops tool biographies that delineate and link the production stages and deposition of key tool types such as Pre-Pottery Neolithic querns and pestles, and their derivatives, as well as Pottery Neolithic celts and milling stones. The variety and sequence of modifications reveal the tools' gradual unfolding through conscious repurposing. In some cases unexpected roles were anticipated and encouraged through the production of tools or blanks that could easily be reshaped. Further repurposing is evident also in some tool's intentional deposition in locations different from what one would expect.

### **Mundane Matters: Ground Stone Tools and Urban Transformation in Early Bronze Age Lebanon**

**Alison Damick** (Columbia University, New York)

In this paper I draw on preliminary analyses of ground stone tools from the Early Bronze Age site Tell Fadous-Kfarabida in northern Lebanon to investigate the ways that 'mundane' household tools can mobilize alternative descriptions of early urbanism. Archaeological periodization tends to foreground materials that mark progress or regression in a line that inevitably results in the Western state model. Substantial changes along these lines are designated as 'revolutions,' of symbolism, of agriculture, and urbanism. Materials that do not reflect change over time in ways that fit these teleologies have long been relegated to the background, the 'mundane,' or commonplace noise of the archaeological record; ground stone exemplifies this. In my analysis, I use the relational anthropologies of Bruno Latour and Tim Ingold, particularly Ingold's call to "think from materials, not about them" (Ingold 2010, 2012). This approach situates the participants in household activities, including stones, animals, humans, and plants, within conversations about materiality that acknowledge circulating states of relations between properties of materials and differently bounded material bodies. Taking into account ways in which bodies, environments, and the material world come together daily, I explore how stone tools of quotidian practice become tools of structural change.

### **Material Transformation in Beads Production in Northern Italy during Copper Age**

**Marco Baioni** (Museo Archeologico della Valle Sabbia, Gavardo), **Massimo Ghedini** (Laboratorio GeaDue, Zola Predosa), **Elisabetta Mottes** (Provincia Autonoma di Trento - Ufficio Beni Archeologici, Trento), **Franco Nicolis** (Provincia Autonoma di Trento - Ufficio Beni Archeologici, Trento), **Raffaella Poggiani Keller** (Soprintendenza per i Beni Archeologici, Milano)

In the alpine area of Trentino and Lombardy regions (Northern Italy), between Copper Age and Early Bronze Age (III and II millennia BC), it is documented the use of rock shelters and small caves for burial practice. During Copper Age collective burial with secondary deposition is widespread, while the same contexts have been used for individual burials during Early Bronze Age. The grave goods are composed mainly by flint dagger blades and harrow heads and pottery. Particularly common are ornamental objects, mainly necklace beads. Petrographical analysis on raw material used for beads production has revealed very important data about some techniques of material transformation. Soapstone and kaolin were transformed by fire in something else, often imported material. This kind of transformation probably could be related with the ritual sphere, in fact the fire took an important place in burial practice (partial combustion of human bones), but it is probably linked to socioeconomic aspects.

### **Evaluating Glass Debris to Conceptualize the Organization of Glass Production: Glass Crafting in the Second millennium BC Anatolia, Syria, and Egypt**

**Gonca Dardeniz** (Koç University, Istanbul)

This paper aims to evaluate archaeologically unique Late Bronze Age glass production debris excavated in Tell Atchana/ancient Alalakh in the 2011 season where various types of glass, faience and frit objects and fragments were found in situ together with a pyrotechnological installation. Hitherto, this glass debris is archaeologically unusual in Late Bronze Age



Anatolia and Syria. Understanding vitrified material production provides linkages to craftspeople, craft specialization and socioeconomic and sociopolitical settings in the region at the end of the second millennium BC.

### **Sticky Things: The Presence of Birch Bark Pitch in Norwegian Iron Age Graves**

**Camilla C. Nordby** (The Cultural History Collections, University Museum of Bergen, University of Bergen, Bergen)

A preoccupation with things has always been at the very core of Scandinavian Iron Age archaeology. Typological analysis of pottery, swords and prestigious objects has not only enabled fine-meshed chronologies, but has also given insight into other areas such as trading networks, political and economic systems, as well as interpretations of power and ideology, gender and religion. Whilst these things have at least been chosen to stand for or symbolise something else, numerous other things have been omitted from these interpretations. The presence of birch bark pitch fragments has attracted little attention within archaeological research, despite the fact that it is among the most common finds in Norwegian Early Iron Age graves. The inconspicuous fragments served as a sealant between the wall and the base of lath-walled wooden receptacles that were utilised as either cremation containers or constituted part of the grave goods in inhumation graves. Despite its mundane appearance, pitch took on a large number of different and important roles, both in everyday life and in the burial ritual. Based on chemical analysis and archaeological interpretations, the inherent and unique qualities of birch bark pitch, which enabled its interaction with other things as well as people, will be explored.

### **Transformation of Warfare: Material Culture and Practice**

**Ingrid Ystgaard** (Norwegian University of Science and Technology, Trondheim)

The paper aims to explore the relationship between the material and the practical side of warfare in a long term perspective, using a practice theory framework. The study concentrates on archaeological material connected to warfare in Central Norway, including graves containing weapons, hill forts, large boat houses and courtyard sites. The paper will focus on the time between c. AD 100 – AD 900, a period prior to both historical records and state formation. What are the relations between the material prerequisites for warfare and the practise of warfare? An understanding of the practice of warfare should include aspects of combat technique, tactics and strategy, as well as an understanding of military organisation and the economic and organisational order of society. This makes warfare an exceptionally good example of a practice which is closely tied both to its material side and to society's institutions.

### **Built Things: Material Transformations in Prehistoric Pontos**

**Magdalena Saura** (School of Architecture, Polytechnic University of Catalunya, Barcelona)

Greek colonists from Phocaea founded Pontos and Emporion (modern day Empiries, in Roses Gulf northeast of Catalonia) in 600 BC. In 2001 a sizeable body of ceramic material from Pontos was excavated and studied by Enriqueta Pons, archaeologist and officer at Prehistoric and Classical Antiquities department of the autonomous government of Catalonia. Since then the author has conducted research on the cultural significance of the man-made environment surrounding findings in Pontos archaeological site of the hinterland. A joint research field project with students of archaeology and architecture has recently revealed pieces of pottery which have engraved orthogonal lines in a low relief, closely drawn to the street, pattern layout of the archaeological site. The paper will focus on the evidence provided through pottery but also through study other facets of material culture such as territorial know-how, which the ancients used to shape their rural and urban settlements. The following concepts of iter, via, partitione, enturiae, limites, actus, chora, chorobate, groma, horistes, horoi, as they are recorded by Classic writers on land survey techniques and town planning, will be further used to inquire into the transformation done on a prehistoric environment into a Greek and Roman agricultural landscape still productive today.

## **POSTERS**

### **Microlithisation in the South-East Baltic Region. Is It Maglemose Culture Influence?**

**Tomas Rimkus** (Klaipeda University, Klaipeda)

Flint material from Mesolithic sites in the South-Eastern Baltic region generated many discussions on the basis of microlithisation subject. In this region discovered and excavated many Mesolithic period sites, which microlithic flint inventory technological origins interpretations are particularly various. The main study of this paper is Maglemose culture microindustry influence importance in the South-East Baltic region microlithisation processes. Based on the Katra 1st settlement (South Lithuania) rich microlithic artefacts material, decided to revive the debates and take a fresh look into the processes regarding South-East Baltic region microlithisation during the Mesolithic. 248 units of microlithic blades and 10 units of cores were discovered in the flint inventory of the Katra 1st settlement. Technological features of cores knapping technique indicates that they were intended for microblades production. Taking into consideration the microblades retouching locations, technological aspects of production and their geometries forms, were single out 13 types of these artefacts, most part of which is analogous to the Maglemose culture flint microindustry. On many occasions the usual archaeologists found



typology is false, so in order to further clarify it, was found microblades functional dependence, which was set through traseological analysis methods. Based on this method was specified microliths use functional dependency.

### **Typology Proved by Traseological and Experimental Archaeology Tests: “Unretouched Scrapers”**

**Gvidas Slah** (Klaipeda University, Klaipeda)

Investigating the Stone Age stone and flint tools traseological and experimental studies revealed, that a significant number of flint tools found in the settlements, archaeologists are not complying with established classical typology. The study includes one of the most common type of article, which should be distinguished not by the classical typology, but also by its specific form, i.e., unretouched scrapers. A review of South Lithuania (Katra 1st), East Lithuania (Pakretuonė 4th settlement) and West Lithuania (Aukštumala, Biržulis Isthmus settlement) Final Paleolithic and Mesolithic settlements of the archeological material was found, the flint scrapers hardware inventory revealed a type which has so far been isolated. This type can be identified as „unretouched scrapers”. Based on certain criteria, and selected cavities flakes that stage was further explored traseological with them and perform experimental tests, producing these articles showed up, that „unretouched scrapers” tools type really stands out from the classical typology, but a common retouched scrapers with a functional purpose. With the here presented fairly easily determinable physical hardware criteria, any archaeologist can easily distinguish this type without specific traseological research.



### **T03S013 - COOKING IN PREHISTORY**

**Organizers: Rana Özbal** (Koç University, Istanbul), **Laurens Thissen** (Archaeological Ceramics Bureau, Amsterdam)

Food acquisition and production has long been a core area of archaeological inquiry, often with special reference to environmental and nutritional factors. More recently food consumption, eating and feasting have appeared on research agendas. Cooking and food preparation, however, the intermediate step in this triad, has often been neglected. Cooking would have required extensive time investment and skill and led to the development of social networks and alliances. Food preparation continues to be among the most culturally imbued activities. Techniques of butchering, heating, boiling, fermenting and drying differ from region to region based on cultural, environmental, ritual, economic and technological factors and produce a wide range of cuisines. Prehistory was the formative period when many of these long-standing traditions developed and the fundamentals of cooking emerged. Cultural contacts offered cooks new technologies and new ingredients diversifying the dietary spectrum and types of cuisines. This session will explore cooking and food preparation in prehistory. Papers are invited that address any aspect of food preparation, from ingredients and material culture (food utensils, cooking installations), to spaces and technologies, and to the social and symbolic aspects of cooking.

### **ORAL PRESENTATIONS**

#### **The Diversity of Culinary Practices within the First Farmers of SE Europe: Evidence from Early Neolithic Pottery**

**Julien Vieugue** (French Research Center in Jerusalem, Jerusalem), **Dushka Urem-Kotsou** (Demokritos University of Thrace, Komotini), **Kostas Kotsakis** (Aristotle University of Thessaloniki, Thessaloniki)

Sharp changes in culinary habits occurred during the second half of the 7th millennium in southeastern Europe. New food-stuffs, which now come from domesticated species of plant and animal origin, are consumed from ceramic vessels. This paper addresses the diversity of food cooking methods within the first farmers of southeastern Europe. Recent research on the use of the earliest pottery from Greece (6600-5600 cal BC) and Bulgaria (6100-5600 cal BC) has revealed that the cooking of foodstuffs using ceramic vessels was clearly practiced from the beginning of the 6th millennium. It seems, however, that some differences between the regions in the studied area existed in terms of the frequency in use, the type of vessels used for cooking and the position of pots over the fire. These differences indicate variability in culinary practices within the area. Observed diversity in dietary habits highlights the historical complexity of the spread of the Neolithic way of life in the region of southeastern Europe and the incorporation of the novelties into local traditions.

#### **Food Technology and the Farming Transition in Southeastern Europe**

**Mariya Ivanova** (University of Heidelberg, Heidelberg)

During the spread of farming from the Near East to Europe, domestic plants and animals were brought into new environments which differed from their natural ecological niches. Farmers were forced to adapt their diet and strategies of food acquisition (for instance, in terms of herding practices and use of wild resources) to ensure food production and survival. Adjustments of food storage and processing technology to new resources and environmental conditions must have played an essential role for the successful spread of farming economy. In this paper, I attempt to relate the material culture of food

of the earliest farmers in Southeastern Europe to specific culinary practices and show the emergence of distinct strategies and traditions of food processing with the adaptation of farming to new ecological conditions.

### **Food Preparation and Domestic Space in Neolithic Western Anatolia and the Southern Balkans: A Comparative Approach**

**Elisha van den Bos** (VU University Amsterdam, Amsterdam)

The social setting of food preparation plays a key role in discussions about the development of Neolithic households. In the case of Neolithic Greece, the spatial arrangement of cooking places has been used to support an evolutionary approach to increasing household autonomy: Early Neolithic settlements are thought to contain more cooking places in 'public' space, suggesting that communal food preparation and informal commensality were important mechanisms for integrating the community. The seclusion of cooking places within houses and walled courtyards in the Late Neolithic is taken as evidence for the manifestation of the household as an autonomous socio-economic unit (e.g. Halstead 1995). Recent evidence calls for a reevaluation of this model, which was based on excavation data from a limited number of (*tell*) sites. Furthermore, the model was devised within a chronological scheme arguing from initial simplicity towards the social complexity of the Bronze Age, and is not integrated into its Neolithic context. This paper aims at confronting the Greek situation with evidence for cooking from Neolithic sites in Western Turkey and Bulgaria - regions which went through parallel processes of sedentarization during the 7th millennium. Can similar changes in the placement of cooking areas be detected in these regions?

### **Carcasses, Ceramics and Cooking in Neolithic Greece: Towards an Integrated Approach**

**Valasia Isaakidou** (University of Oxford, Oxford), **Paul Halstead** (University of Sheffield, Sheffield)

It is now widely accepted that the wealth of fine 'tableware' from the Neolithic of Greece reflects the social importance of commensality, while mortality and butchery data suggest that many, perhaps most, domestic animals were consumed at commensal occasions transcending individual households. Thanks to faunal, archaeobotanical and ceramic residue analyses, we have an increasingly rich picture of the range of ingredients consumed in Neolithic commensality, while ceramic typology has shed light on the orchestration and perhaps scale of such events, but we know little of the nature of the dishes consumed in everyday or ceremonial meals. This paper explores how data from faunal study (animal mortality, butchery, bone fragmentation), ceramic typology (vessel size, form and function) and ceramic food residue analysis may be integrated to shed some light on the ways in which meat and animal fats were prepared for consumption. It will be argued that changing patterns of food preparation and consumption through the Neolithic of Greece are apparent in the faunal as well as ceramic record and that the potential of ceramic residue analysis can be fully realized only when this is integrated with faunal and macroscopic ceramic data.

### **Some Examples of Food-Preparation in the Territory of Prehistoric Bulgaria**

**Krassimir Leshtakov** (Sofia University, Sofia), **Tzvetana Popova** (Institute of Archaeology and Museum BAS, Sofia)

The paper presents some examples related to the techniques of food preparation, conservation, use of different types of vessels, furnaces, cooking installations and follows the ways of the pretreatment of the meat and plant food. Based on archaeological data related to food preparation there are attempted culinary models of prehistorically settlements in the territory of Bulgaria. The main information comes from the recently excavated in the Maritsa River valley Early Neolithic sites Yabalkovo and Nova Nadezda. There are two main groups archaeological records – archaeological evidence (vessels for food-preparation; cooking facilities – fire-places, ovens and domed furnaces; backing-pans, bone spatula and spoons, etc.), and data, extracted by so-called multi-disciplinary methods. On the basis of collected and analyzed evidence the authors consider the hypothesis that already in the end of the 7. Ky call BC the population of the East Balkans had a well-developed food-culture. It is early to postulate that all knowledge comes together with the Neolithic package from Anatolia and Near East as the comparison is forthcoming. The manner of food-preparation obviously plays a vital role in the way of life of the Early Neolithic inhabitants and should be considered as an important part of the process of Neolithization of Europe.

### **Administrators' Bread**

**Jill Goulder** (UCL, London)

An experiment-based reassessment of the functional and cultural role of the Uruk bevel-rim bowl. Interpretation of the function and cultural implications of the bevel-rim bowl, the type-fossil of the Late Uruk, has often been clouded by tenuous analogical links and circular arguments. This paper aims to question the widely-postulated links between BRBs and other mass-produced bowls of the period through practical experimental demonstration of the BRB's unique suitability for bread-baking, with the further aim of proposing – with the aid of experimental manufacture of BRBs – a new focus on the BRB as an early example of production-line engineering. The argument then takes a further step: the distribution of BRBs, particularly in the case of newer small-scale finds in early/ late/ remote Uruk contexts, may bear closer connections to the

presence of Uruk administrators than to the work-gangs for whom it was traditionally assumed that the BRBs were utilised to supply grain or other rations. I suggest that the desirable leavened bread baked in BRBs was destined at least partly for the large new and little-studied social group of Uruk administrators, for whom this conical loaf became a cultural icon and with whom it moved out to other regions.

### Daily Bread. The Origin of Tandir Ovens in Anatolia

**Lucia Mori** (Sapienza University of Rome, Rome), **Francesca Balossi Restelli** (Sapienza University of Rome, Rome)

The present paper deals with the specialised flat bread ovens that are still today an inescapable feature of the whole Near East and many North African countries. According to the collective memory these have historically always been part of a home's food facilities and excavations seem greatly to have confirmed this. Textual evidence from historical periods in Greater Mesopotamia describe such ovens and distinguish them from the also present domed ones. Excavations have revealed the presence of tandirs in Mesopotamian Early Dynastic period, but contemporary data from Eastern Anatolia is weaker. Evidence of ovens from prehistoric and protohistoric periods in Eastern Anatolia and Mesopotamia shall be presented with the intent of dating and explaining the origin of the first specialisation of bread production.

### Different Times Call for Different Ovens

**Ana Đuričić** (Department of Archaeology, Faculty of Philosophy, University of Belgrade, Belgrade)

In the Early Neolithic Starčevo culture and the Late Neolithic Vinča culture, different types of ovens were found. Based on the physical and technological characteristics they imply different cooking techniques. Starčevo ovens were dug into the soil right next to the semi-subterranean dwelling and connected to it with a horizontal tunnel, while Vinča ovens were domed structures, modeled from clay and were located inside the above ground houses, and were similar to traditional ovens found through various cultures up until the 20<sup>th</sup> century. Ethnology, ethnoarchaeology and experimental archaeology can help us understand the construction and usage of those fire installations. During the year 2012, an experimental Vinča culture oven has been constructed and used since then for a variety of experiments. Its main characteristic is to accumulate heat, and then bake with dry radiating heat. It is suitable for bread baking. The aim of this paper is to experimentally test Starčevo ovens and see what cooking strategies they allowed in comparison to the Vinča ones. The main questions are: could they have made the same type of bread as in the Vinča culture, how it could have been done, or if not, what was the alternative?

### The Use of the Natural Brine for Food Preservation. Ethnoarchaeological Research in the Extra-Carpathian Area of Romania

**Felix-Adrian Tencariu** ("Alexandru Ioan Cuza" University of Iași, Iași), **Marius Alexianu** ("Alexandru Ioan Cuza" University of Iași, Iași), **Andrei Asăndulesei** ("Alexandru Ioan Cuza" University of Iași, Iași), **Mihaela Asandulesei** ("Alexandru Ioan Cuza" University of Iași, Iași), **Ștefan Caliniuc** ("Alexandru Ioan Cuza" University of Iași, Iași)

The archaeological evidences confirmed that the brine of the salt springs from the Subcarpathian area was used to obtain salt, through the evaporation-crystallization processes, as far back as the Early Neolithic. This region is nowadays unique in Europe for its traditional and non-industrial ways of salt water exploitation, still intensively applied. This inestimable scientific resource has been, in the last decade, the subject of an extensive ethnoarchaeological research conducted by a Romanian/French team, with impressive results. The paper deals with some results of the ethnographic inquiries, focusing on the traditional ways in which the brine is used in its originally state, mainly for preserving different types of food, but also for daily cooking and preparing the feed for animals. It is significant that these behaviours survived the important cultural, economic and socio-political changes of the last centuries. Therefore, the paper also explores the possible implications for the prehistoric archaeology, having as premises the ancient exploitation of the brine and the (most probable) need to conserve aliments (e.g. meat, cheese), with few options available. Hence, techniques similar to those known today are highly susceptible of having been used in prehistoric times, though much more difficult to establish than the brine recrystallization.

### Beer-making in Ancient Egypt

**Bartosz Adamski** (Jagiellonian University, Krakow)

It is a common knowledge that beer, besides bread, was one of the most important staples for the Ancient Egyptian population. Recent discoveries of the constructions of breweries at such sites like Hierakonpolis or Tell el-Farkha, both dated to the Predynastic Period, together with the archeobotanical analysis of beer remains revealed quite new data, which enable us to conduct more complex beer-making process reconstruction. Unlike the so-called traditional view derived only from the iconography, beer in ancient Egypt was not made of bread. Egyptian beer was a low-alcoholic beverage obtained in malt and wheat-porridge mixing process. Although only so far Egyptian excavated breweries come from the Predynastic Period, the beer recipe, according to the archeobotanical data, was still current almost 2,000 years later at the end of the New Kingdom Period. The lack of so-called brewery-structures in later than Predynastic Periods suggests a deep social transition between Predynastic and Dynastic Periods in Ancient Egyptian society.

## How Do You Eat Yours? Griddle Stones and Cooking in Central Anatolia

**Adnan Baysal** (Bülent Ecevit Üniversitesi, Zonguldak)

It is evident from faunal studies that prehistoric societies continued hunting, gathering or collecting edibles depending what the season offered despite domesticating animals and plants. In most scenarios, animal products, especially meat, were a contributor to the diet in variable quantities. This paper aims to emphasise the new method of food preparation with griddle stones that has been identified at the early Neolithic sites of Pınarbaşı and Boncuklu Höyük in Central Anatolia. Evidence for the consumption of food partially has been based on data from faunal remains and their discoveries in contexts typically identified with “feasting” in archaeological literature. It is possible to argue that the way of preparing/cooking meat products conducted by the use of griddle stones, which are a typologically new addition to Central Anatolian ground stones. In addition, reasons for the appearance and disappearance of griddle stones within the specific time period (c. 8500 BC) will be evaluated and questioned. Whether these griddle stones can be seen as an indication or reflection of economic process, change in social behavior and way of life in prehistoric communities in Central Anatolia will be considered.

## Some Thoughts on the Food Preparation in the South Romania Early Neolithic

**Pavel Mirea** (Teleorman County Museum, Alexandria)

Recent research carried out at the Neolithic site of Măgura, Teleorman county, southern Romania, has revealed a series of clay objects, most of them discovered in the earliest level (c. 6000 cal BC). The contexts of these finds, their fabric and typology, occasionally also the presence of “functional” decoration, as well as the presence on the entire surface of cracks caused by thermal shock during use, together suggest to interpret these objects as “cooking stones” related with food preparation practices. Simultaneously, specific characteristics of certain vessel categories suggest their use in connection with the “cooking stones,” or clay balls. The presence of wooden vessel fragments on the site is an argument for this method of food preparation as well. I will also discuss other finds, including a series of cracked stones - sandstones and quartzite - showing traces of burning and heat exposure suggesting a similar use as the clay balls. In addition, these stones have been used in other ways for food preparation or heating components, through heat radiated after being accumulated during their heating. These aspects, confirmed by ethnographic parallels and various archaeological experiments, prove a common practice in Anatolia, the Balkans and in the Lower Danube area.

## Stir Well and Eat Hot: Bone Spoons and Neolithic Gastronomy

**Fokke Gerritsen** (Netherlands Institute in Turkey, Istanbul), **Mücella Erdalkıran** (Ege University, Istanbul), **Kim Dekker** (Vrije Universiteit, Amsterdam)

Bone spoons are a conspicuous element of Late Neolithic/Early Chalcolithic settlements in Northwest Anatolia, as well as elsewhere. For implements whose primary functions were related to the mundane practices of cooking and eating, it is striking that considerable effort was used in their production and maintenance. This paper explores the functional, social and symbolic significance of bone spoons by looking at the cultural biography of spoons from the Neolithic site of Barcın Höyük in Anatolia. Excavations at this site have yielded a considerable number of spoons, in a variety of sizes and shapes, and from a variety of contexts. Traces of use-wear and modification suggest intensive and prolonged use of at least some of the spoons. Interestingly, among a general lack of grave goods, the spoon is the only recurring type of artifact found with burials.

## Culinary Practices and the Formation of Social Spaces: The Contribution of Cooking Facilities

**Evita Kalogiropoulou** (Hellenic Ministry of Culture, Athens)

The preparation of daily meal is a vital everyday practice that creates advance socialities and contributes to the formation of social spaces. In prehistoric societies hearths and ovens constituted the means by which fire was controlled and raw ingredients were converted into baked and edible meals. The study of cooking facilities, however, as the intermediate step in the *chaîne opératoire* of cooking and consumption practices was often neglected. Only recently archaeological works focused on the systematic analysis of these material culture remains and introduced hearths and ovens as an important agent to the current theoretical agenda. This paper examines daily activities and socialities developed in the context of ‘kitchen spaces’ in Neolithic societies in Northern Greece. Key element of the analysis is the spatial distribution of cooking facilities within the settlements. The present study approaches the formation of social spaces through daily cooking and consumption practices and seeks to unfold various micro-histories of Neolithic lifeways on the local scale. Here, hearths and ovens are regarded as loci of daily performances, gatherings and interaction between co-inhabitants. As such cooking facilities contributed to the development of collective social values and gave meanings to the choices that shaped social spaces.

## “Home is where the Hearth is?”: Clay Structures as Spatial Indicators of Cooking Activities in Early Bronze Communities in Northern Greece

**Evi Papadopoulou** (Ministry of Culture and Sports, Department of Prehistoric and Classical Antiquities, Athens)

Clay structures such as hearths and ovens are considered strong archaeological evidence for cooking activities. By consisting focal points of food processing and consumption, they usually serve as markers for kitchen spaces. Based on a group

of clay structures from the Early Bronze Age settlement of Archontiko in Northern Greece, the present paper wishes to explore the spatial dimension of cooking by examining the character and eventually the significance of thermal structures' spatial patterning. A special emphasis is placed upon the several parameters that may affect these patterns, such as taphonomic, functional and social. Finally, the Archontiko evidence is discussed on a wider temporal and spatial context in order to detect changes in the organization of cooking spaces within different northern Greek communities of the Neolithic and Early Bronze Age periods.

### **Cooking and Serving Practices at an Amorite Palace: An Intact Kitchen Context from Middle Bronze Age Alalakh**

**Müge Bulu** (Koç University, Istanbul)

This paper presents the results of the contextual study conducted on the recently excavated Middle Bronze Age (19th -18th Centuries BC) palace kitchen at Tell Atchana, Ancient Alalakh. By analyzing the mud brick architecture and artifact assemblages uncovered, this research focuses on how an Amorite palace kitchen was organized and what it can reveal about an essential part of the daily life at a palace. Using the rare opportunity of having an in situ and well preserved context, the use of space and the nature of food preparation are evaluated according to the attributions of the artifact assemblages and their distribution. Along with the faunal and floral remains, the preserved hearth with associated cooking pots, built-in storage jars and adjunct artifacts suggest that this area was used for a particular type of food production and possibly for grain processing to be used in beer-making. This research contributes to our knowledge of the lesser-known earlier Middle Bronze Age phases of Alalakh and provides an insight to the cooking and serving practices of a Middle Bronze Age Amorite palace.

### **Changing Cooking Practices at Neolithic Barcın Höyük, NW Turkey**

**Laurens Thissen** (Archaeological Ceramics Bureau, Amsterdam), **Rana Özbal** (Koç University, Istanbul), **Hadi Özbal** (Boğaziçi University, Istanbul)

This presentation discusses the excavations at seventh millennium Barcın Höyük to explore the changing practices in cooking throughout the site's occupation in the NW Anatolian Neolithic. The modifications involved in how food was prepared may have had wide-ranging effects on the social organization of cooking and associated menus. From the earliest pottery bearing levels (c. 6,600 cal BC) people at Barcın used ceramics to process food and to cook in. Smudge traces and soot deposits on the inside surfaces testify to this. Rim abrasion, spill traces on exterior vessel walls, and attrition marks on both inside and outside base and lower vessel body surfaces confirm that pots were heavily used as tools. This paper asks how changes in cooking facilities and ceramic technology altered the daily lives of the inhabitants and their supra-household economies, what types of installations and portable artifacts inform us about cooking and eating and finally how the changes in cooking practices were connected to the rise of dairy processing and dairy consumption. Residue analyses suggest that a gradual diversification of vessel shape at Barcın implies functional diversification and is directly linked to a growing importance of dairy processing.

### **Cooking in the Neolithic of North Greece**

**Dushka Urem-Kotsou** (Demokritos University of Thrace, Komotini)

This paper discusses changes in the use of ceramic vessels in relation to the preparation of food during the Neolithic period in northern Greece. Recent studies of neolithic cooking pots from the settlements in northern Greece show that early pottery was not used over fire. The first clear evidence for the use of the vessels for cooking is encountered in the Middle Neolithic, but the range of the shapes were quite limited. Increased morphological variability of cooking pots is attested in the Late Neolithic suggesting increased variety of cooking techniques applied in the preparation of food. Ongoing study of organic remains from cooking pots through chemical analysis provide additional evidence on the diversity in dietary habits of the neolithic communities in north Greece.

### **Guess who's Coming to Dinner? Cooking Practices at Arslantepe from 4200 to 2000 BCE**

**Francesca Balossi Restelli** (Sapienza University of Rome, Rome), **Roberta Crisarà** (Independent researcher, Turin), **Maria Bianca D'Anna** (E. Karls University Tübingen, Tübingen), **Paolo Guarino** (Independent researcher, London), **Paola Piccione** (Sapienza University of Rome, Rome)

The present paper proposes a diachronical analysis of cooking practices at Arslantepe. Cooking pots from the beginning of the Late Chalcolithic period to the end of the Early Bronze Age (ca.4200-2000 BCE) are analysed according to their shapes, dimensions, use wear traces, and presence/absence of functional elements such as lugs or handles. We also illustrate the contexts and fireplaces on which pots were used. Principal aims are to identify how pots were used and what they suggest on the type of foods cooked, how commensal groups varied through time, and how such variability might be linked to social and cultural differences between the communities that settled at Arslantepe.



### **Crème de la Crème: Eating at a Hungarian High Status Bronze Age Site**

**Christina Karlsson** (Independent researcher, Stockholm), **Sven Isaksson** (Stockholm University, Stockholm)

Prehistoric food is often discussed in the context of feasting, where large amounts of grilled meats are presented. The everyday food is not as often discussed and generally thought of in varying amounts and versions of gruel, stews and bread. Often the displays of prehistoric cooking in re-enactment shows a rather gray and unappetizing mass. This paper would like to add an ingredient to the everyday eating, namely that of dairy products. The presence of cattle in the osteological material is not out of the ordinary, however the processing and storage of milk is rarely discussed. This paper aims to discuss the results of organic residue analyses performed on a large quantity of ceramic vessels from the Bronze Age *tell* site of Százhalombatta-Földvár in Hungary, a site where the majority of cattle bone comes from adult females. The presence of fats of ruminant origin together with indications of some them stemming from dairy, suggests a use of dairy products but raises the questions of how the milk was processed and stored. This paper aims to provide some suggestions for those questions.

### **Cooking for the Dead: Cooking Vessels from the LBA I Myrtos–Pyrgos Tomb**

**Eleni Hatzaki** (University of Cincinnati, Cincinnati), **Dushka Urem-Kotsou** (Demokritos University of Thrace, Komotini), **Gerald Cadogan** (University of Cincinnati, Cincinnati)

The excavations at Myrtos–Pyrgos in South East Crete have revealed a settlement inhabited in the Prepalatial, Protopalatial, and Neopalatial periods. Along with the settlement remains a tomb was uncovered revealing a comparable sequential history of use. This is an important find, particularly for the Neopalatial period, since tombs of this period are quite rare in Crete. While the ground floor of the Myrtos–Pyrgos tomb was used exclusively for the interment of males, the upper floor housed an assemblage of over 1,000 ceramic vessels. Unlike contemporary tombs where cooking vessels are almost absent, at Myrtos–Pyrgos various types of cooking pots are attested; many of them seem to have had prolonged use (unlike many of the other ceramic vessels from this assemblage, which seem to have been deposited brand new). The size and the variability of the shapes of the cooking pots, and their use/wear traces, indicate that several different cooking techniques were used to prepare different kinds of dishes. In this paper we discuss the rare phenomenon of cooking in a funerary context as revealed at Neopalatial Myrtos–Pyrgos.

### **Food Processing among Early Farmers in NE of Iberian Peninsula: Contributions from the Site of La Draga (Banyoles, Spain)**

**Anna Berrocal** (Departament de Prehistòria, Universitat Autònoma de Barcelona, Barcelona), **Ferran Antolín** (IPNA/IPAS, University of Basel, Basel), **Marian Berihuete Azorín** (University of Hohenheim, Institute of Botany, Stuttgart), **Antoni Palomo** (Departament de Prehistòria, Universitat Autònoma de Barcelona, Barcelona), **Raquel Piqué** (Departament de Prehistòria, Universitat Autònoma de Barcelona, Barcelona), **Maria Saña** (Departament de Prehistòria, Universitat Autònoma de Barcelona, Barcelona), **Xavier Terradas** (CSIC-IMF, Institut Milà i Fontanals, Igualada)

La Draga is an early Neolithic (5300–5000 cal BC) site near the shore of Lake Banyoles (Spain). The extraordinary preservation of organic material in waterlogged conditions offers a unique opportunity for approaching the technologies of food transformation. On the one hand the residues of food production (charred cereals, certain types of remains of wild fruits, fire-cracked rocks...) and consumption (faunal remains...) provide information of the final products themselves, but also about the techniques of food processing (milling, butchering) and cooking (boiling, roasting). On the other hand the wooden and bone instruments, stone tools and the pottery allow a better understanding of these techniques, in particular the spoons, ladles, one beater, pottery and wood vessels or ground stones can be related with particular cooking and food processing techniques. A first discussion of technology of food processing and cooking in the site of La Draga is presented in this paper.

## **POSTERS**

### **From Content to Context: Situating Lipid Residues in the British Neolithic**

**Emilie Sibbesson** (Canterbury Christ Church University, Canterbury)

This paper considers the interplay of food and material culture during the British Early and Middle Neolithic. Specifically, a ceramicist's perspective is brought to bear on scientific data obtained by lipid residue analysis of pottery by GC/MS and GC/C/IRMS. It is argued that careful contextual and ceramic-centred interpretation of lipid residue datasets can shed light not only on cookery practices but also on aspects of pottery manufacture and use. The British Neolithic has recently been re-styled as predominantly pastoral rather than fully agricultural, and this has generated a new set of questions about everyday lives. Accordingly, special emphasis is on evidence from the small domestic sites that are overlooked in narratives that focus on the conspicuous monuments of the Neolithic. Integration of the integration of organic and inorganic evidence produces intimate accounts of cooking, eating, and sharing food in this period.



### Cooking with Neolithic Ovens

**Suay Şeyma Erkuşöz** (Koç University, Istanbul)

Presented in this poster is an examination and comparison of cooking/food preparation spaces vis-à-vis Neolithic ovens found in Central Anatolia and the Lake District. Where people prepared and consumed their food forms an inevitably important part of daily life as it is impossible to imagine a modern house without a kitchen or an associated cooking area. A study of cooking and/or food preparation spaces provides insights into aspects of daily life in both Central Anatolian and Lake District's Neolithic periods. As the organization of cooking space is closely related to the technologies and techniques of food production and consumption, this poster focuses ovens with a specific emphasis on their location in the cooking area (e.g. the repetitive construction or lack thereof), the production technologies and techniques such as building material and stylistic preferences. Examined are the conditions and actions which produce and constrain human behaviors with reference to spatial organization in Neolithic settlements of these regions. A study of food preparation/cooking areas hence enables a discussion of the differences and similarities between the settlements of Central Anatolia and Lake District and thus a more complete look at the *habitus* or the ways in which people structure their daily lives.

### Production of Wine in Thracia and Moesia Inferior on the Territory of Modern Bulgaria: Myth and Reality

**Viktoria Chystyakova** (Charles University, Faculty of Arts, Institute of Classical Archaeology, Prague)

With the comparison of archaeological finds, iconographical and epigraphical data, the question of the transformation of winemaking during the Roman period will be analysed in a wider cultural context. Across the prehistorical time the area of ancient Thrace was associated with massive wine production and culture of wine consumption. Considering this we could expect the continuation of winemaking during the Roman period and the development of a network of local manufacturing centers. On the one hand there is archaeological evidence as finds of billhooks-*securis*, that are found all over the province of Moesia and motives of grapes and images of Dionysus on the gravestones and votive reliefs; moreover in *Corpus iuris civilis* there is special regulation from the period of rule of Antoninus Pius that had to protect and promote the wine production in Moesia Inferior. On the other hand there is an absence of bigger production units with specialized equipment as a wine press (except huge *cella vinaria* and wine press in *villa rustica* near Madara). So, is the general awareness of Thracia and Moesia as a "land of wine" correct or was there stagnation of the wine production during the Roman period?

### Production of Wine and Olive Oil in Roman Histria and Dalmatia in the 1st century BC – 5th century AD

**Jana Kopáčková** (Charles University, Faculty of Arts, Institute of Classical Archaeology, Prague)

Olive oil formed always a very important part of Mediterranean diet, but was also used in cosmetic, for lightning etc. Wine was part of sacred *libatio* and the favored beverage, also like oil beneficial for health. Inhabitants of the Roman Empire used both liquids every day. In the Roman province of Dalmatia and Eastern part of the Italian Regio X Histria there are quite often archaeological evidence of processing grapes and olives. Between these two regions are noted considerable differences, especially unequal representation of production centers: numerous on the coast of Histria, with less evidence in Dalmatia. This is caused partially by present condition of archaeological research in Croatia and partially by unequal historical development. Some ancient authors inform us about the whole process; planting of olive tree and grapevine, types of pressing-devices and a step by step explanation of the procedure of making wine and oil (Pliny the Elder, Cato the Elder, Varo, Columella), architecture of production centre (Vitruvius) and also gastronomy and recipes (Apicius). Among the archaeologically detected proofs of this important agricultural production belong the pressing room with stone-made equipment (fruit mill - *trapetum*, pressing device of two types) and warehouse for finished products (*cella olearia* / *vinaria*).



### T03S014 - POTTERY AS EXPERIMENT: SHIFTING AND ADAPTING PRODUCTION TECHNOLOGIES, FUNCTIONS AND STYLES

**Organizers:** **Maria Cristina Biella** (University of Southampton, Southampton), **Orlando Cerasuolo** (University at Buffalo-The State University of New York, New York), **Antonio Francesco Ferrandes** (Università Sapienza di Roma, Roma), **Martina Revello Lami** (University of Amsterdam, Amsterdam)

Ceramics, by far the most common find in the archaeological record, are of vital importance in reconstructing the past. Pottery studies have been mainly concerned with assessing degrees of standardization/specialization, functional properties of artefacts, and classification of stylistic attributes. Indeed, greater attention has been given to the definition of similarities in the *chaîne opératoire*, rather than its variants. On the contrary, the evaluation of experimentation processes may provide powerful tools to analyse the individuality of artisans/artists, as well as highlight the contexts in which major cultural and technological interactions took place. This session aims to gather a variety of studies (from Neolithic to Roman period across the ancient Mediterranean), which illustrate pottery production as an experimental and innovative phenomenon, with respect to technology, function and decoration. The issues to be explored could include (but are not limited to): • Identification of trials, tests and experiments; • Hybridization within shape, function and decoration; • Shapes that shift in function through time, and vice versa; • Incorporation of new technologies or motifs into customary practices; • Adoption

of technique and styles derived from other craft technologies (metal, textile, wood, etc.). We are particularly interested in interdisciplinary research and fresh perspectives on traditional approaches; moreover, we encourage participation of scholars using material science analysis and advanced technical tools of inquiry.

## ORAL PRESENTATIONS

### **Pottery as Experiment: Shifting and Adapting Production Technologies, Functions and Styles. Opening Remarks**

**Maria Cristina Biella** (The British School at Rome, University of Southampton, Rome), **Orlando Cerasuolo** (University at Buffalo - The State University of New York, Buffalo), **Antonio Francesco Ferrandes** (Sapienza Università di Roma, Rome), **Martina Revello Lami** (University of Amsterdam, Amsterdam)

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### **The Red-Black Burnished Ware: A Brand New Pottery Production at the End of the 4th millennium BC in the Upper Euphrates Valley**

**Hülya Çalışkan Akgül** (Missione Archeologica Italiana in Anatolia Orientale, Rome)

The red-black burnished ware, of which the early samples appeared in phase VII (Late Chalcolithic 3-4, 3800-3400 BC), increased in number in phase VIA (Late Chalcolithic 5, 3350-3000 BC) at Arslantepe located in the Upper Euphrates region in Anatolia. The main characteristic of this hand-made pottery is the difference of colour pattern between inner and outer surfaces. In numerous cases, the bi-chromatic pattern of the surfaces is also visible in the cross-section of the vessels. Analyses of the ceramics demonstrate that certain pottery forms of phase VIA, which consist of special forms such as small service vessels and fruit stands, should be bound with the Late Chalcolithic red-black pottery found in Central Anatolia, particularly in Alişar and Alaca Höyük rather than in Transcaucasia. The same characteristics, detected in terms of form and functionality in addition to production-firing techniques have also been identified in the Late Chalcolithic levels at Tepecik. The red-black burnished ware, which appeared as a brand new and limited production technique, came up parallel to the developments in metallurgical activities as detected at Arslantepe and Tepecik. This paper deals with the comparison of the red-black burnished ware between Upper Euphrates Valley and Central Anatolia in the 4<sup>th</sup> millennium BC.

### **Interdisciplinary Investigation on the 4th and 3rd millennia BCE Pottery Production at Arslantepe-Malatya. Cultural and Technological Interaction, Transmission, Adaptation and Innovation**

**Pamela Fragnoli** (Ruprecht-Karls-University, Heidelberg), **Maria Bianca D'Anna** (Eberhard Karls University, Tübingen)

Arslantepe pottery production offers a significant record to investigate organisational, economic and cultural changes. During the Late Chalcolithic period (periods VII and VI A), when an early-centralised complex society was established at the site, pottery became more standardised also thanks to the use of the wheel. However, both wares and shapes changed from period VII to VI A whereas a new class of Anatolian Red-Black Burnished pottery appeared at the very end of period VII. The so-called Red-Black Burnished ware, hand-made and with strong Kura-Araxes affinities, composed almost exclusively the pottery assemblage of period VI B1 (EBA Ia). At the end of the EBA I (VI B2) wheel-made wares strongly linked to the previous Late Uruk tradition significantly reappeared flanking the RBBW production. In this paper, we will present the results of petrographic and chemical analyses conducted on 60 ceramic samples dated to the LC and EBA (Periods VII-VI B2, ca. 3800-2750 BCE). Aim is to define changes and continuity in the production organization and to identify technological know-how transmissions by relating archaeometric results to both typological and functional classifications. Accordingly, we identify critical differences in raw material supply and paste preparation, reflecting technological, functional, cultural, and chronological variability.

### **From Obsidians to Ceramics: New Experimental Approaches to Obsidian-Tempered Pottery from Southern Caucasus**

**Giulio Palumbi** (Laboratoire Archéorient, UMR5133, CNRS Lyon, Lyon), **Giuseppe Pulitani** (Vasellarius Tusculanus, Rome), **Bernard Gratuze** (IRAMAT, CEB, UMR 5060 e CNRS/Univ. Orléans, Orléans), **Christine Chataigner** (Laboratoire Archéorient, UMR5133, CNRS Lyon, Lyon)

In spite of their potential for understanding the patterns of provenance and circulation of raw materials and ceramic vessels, analyses of obsidians employed as a ceramic-temper have never been developed so far. This is why we have recently

undertaken a pioneering work on the obsidian-tempered ceramics from the Southern Caucasus as we were aware of the potentialities that this new approach may offer to archaeological research. In the Southern Caucasus, obsidian-tempered ceramics appeared in the Chalcolithic period. Their technical, compositional and aesthetic features make them easily identifiable from other contemporary traditions. We ignore the practical and functional reasons behind the use of obsidian as a temper for ceramic production. The purposes behind this research are manifold and will be developed by means of an interdisciplinary approach. Firstly, we want to present the results obtained by means of Laser Ablation High Resolution Inductively Coupled Plasma Mass Spectrometry to the obsidian-tempered ceramics from the Chalcolithic site of Aratashen (Armenia). Secondly, we will show how investigating ceramics will also help to build new perspectives on the modes of acquisition of the obsidians. Finally, we will propose new hypotheses on the function of the obsidian-tempered ceramics by means of experimental trials.

### **Imitated Pottery Vessels in Egypt: An Approach Towards Identification and Classification of a Phenomenon** **Bettina Bader** (University of Wien, Vienna)

Increasingly reports describe ceramic vessels at a variety of sites and in various periods as ‘imitations’ or ‘copies’ of either other ceramic vessels or containers made of entirely different materials such as stone or metal without going into much detail or discussion. This paper deals with a diachronic classification of this phenomenon in Egypt, which includes a discussion of terminology (‘imitation’, ‘copy’, ‘entangled object’, hybrid object, etc.) as well as a proposal of methodology how to illustrate similarities and highlight differences, which may also allow inferences on the ultimate purpose of such material. Egyptian pottery vessels were made to be similar to stone vessels as well as metal vessels from the Early Dynastic period onwards, but also local imitations of previously imported ceramic vessels occur in various instances of the Middle and New Kingdoms. Whether these phenomena should be divided from pure material imitations will be discussed as well as if indeed extensive inferences can be based on such observations, e.g. that the makers of this pottery have a non-Egyptian origin. Important aspects for pinpointing such phenomena are also the study and analysis of the raw materials as well as the contexts.

### **Transitional Cases: Innovation as a Bridge between Three Independent Pottery Wares of the Late 2nd and Early 1st millennia BC at Tayma (Saudi-Arabia)**

**Francelin Tourtet** (German Archaeological Institute, Free University, Berlin)

At Tayma (Saudi-Arabia), the painted pottery of the late 2<sup>nd</sup> to mid-1<sup>st</sup> millennia BC can be divided into three groups on the basis of chronological, technological and stylistic criteria: Qurayyah Painted Ware, Early Iron Age Ware and Tal’a/Sana’iye Ware. Although they are often considered individual and independent wares, distinction is not always evident. This situation led earlier scholars to consider the painted pottery of the 1<sup>st</sup> millennium as one single ware, called “Tayma painted ware”. Focusing on the overlaps between these groups and presenting the results of the recent excavations at Tayma, this paper is aimed at identifying innovations (long-lasting modifications of production) and experiments (changes without posterity) in the pottery production of the oasis between the late 2<sup>nd</sup> and mid-1<sup>st</sup> millennia BC. First, the main wares and the transitional cases will be presented. Then, in regard to the different production stages (raw materials, manufacture, vessel shape, decoration) affected by changes identified on the transitional cases, their posterity will be investigated. Finally, the scale of investigation will be broadened, looking at the origin of possible exogenous inputs leading to the identified changes and at the acceptance or rejection of the innovations identified at Tayma outside of the oasis.

### **Typological and Technological Features of the Sintashta Pottery (South Urals, Russia)**

**Sofya Panteleeva** (Institute of History and Archaeology, Ural Branch of RAS, Ekaterinburg), **Ekaterina Dubovtseva** (Institute of History and Archaeology, Ural Branch of RAS, Ekaterinburg)

The Sintashta culture is a striking phenomenon that attracts attention of archaeologists studying the Bronze Age societies of the Eurasian steppe. Available data allow scholars to define the Sintashta society as the outstanding example of social complexity. Many elements of this tradition are non-local, and genesis of the culture is one of the most discussed problems. Ceramics of the Sintashta type is very different in forms and decoration. Some analogies to these wares were found in the several cultures of the steppe and even in the more distant regions (the Caucasus, Southwest Asia). Recently some attempts to create typologies of the utilitarian and ritual pottery were undertaken. The paper aims at presenting an example of such classification based on the materials of the Kamennyi Ambar fortified settlement. Technological, morphological and ornamental features of the vessels were analysed. As a result of the study, it is possible to conclude that the inhabitants of the settlement were culturally heterogeneous, but the process of intermixture passed very intensively. The traces of hybridization are especially evident in the technological characteristics of vessels. This work has been undertaken within the interdisciplinary project, supported by the Presidium of the Urals Branch of RAS.

### **Cross-craft Interactions and Exchange Models in Protopalatial Phaistos (Crete): The Pottery Evidence**

**Alessandro Sanavia** (University of Venice – Ca’ Foscari, Venice)

The transfer of know-how between generations of potters in the Mesara plain (Crete), from the Early Bronze to the Middle Minoan period, now appears to be an established fact, based on petrographic analysis and archaeological studies. The

overall function of some peculiar Phaistian fine wares from the Protopalatial period (c. 1900-1700 BC), on the other hand, seems to attest to a close and synchronic interchange among different classes of materials (and kinds of metal in particular), through an exchange of expertise, models, and possibly tools, which deeply influenced local artisans. The specific case of some vessels characterized by stamped decorations and a shiny creamy-white coating clearly shows that the skilled craft techniques used by potters must have been borrowed from contemporary metalworking. This paper presents a selection of pottery whose shapes and decorations are clearly reminiscent of techniques such as *repoussé*, moulding and even inlaying on more precious metal vases. This interchange framework, however, appears rather ambiguous, since the existence of precious metal vessel prototypes, which are virtually absent from the Cretan archaeological record, may only be inferred on the basis of the pottery itself.

### **Tracing the Wheel from Knossos to Akrotiri: New Perspectives on Ceramic Innovation from the Later Middle Bronze Aegean**

**Jill Hilditch** (University of Amsterdam, Amsterdam), **Caroline Jeffra** (Independent Researcher, Washington DC), **Irene Nikolakopoulou** (Archaeological Institute for Aegean Studies, Rhodes)

This paper will discuss ongoing research into the transmission, adoption and adaptation of the potter's wheel across the Aegean region in the later Middle Bronze Age. During this period, the potter's wheel appears at many sites across the central and southern Aegean as part of a package of new technologies that spread across this region, traditionally seen as radiating from Minoan Crete. However, the uptake of these 'Minoan' technologies at disparate sites beyond Crete is variable and recently the need to reassess these phenomena from a bottom-up perspective has been emphasised. Using experimental and analytical studies of the palatial ceramic assemblage from Knossos (Crete), the introduction of the potter's wheel at Akrotiri (Thera) is reassessed, casting new light on learning networks, social practice and 'traditional' narratives for ceramic production development. An experimental approach to the chaîne opératoire is presented as an effective means for identifying both similarities and differences across the production sequence and to investigate shifts in technological choices through time. This approach allows us to address key questions on how new technologies are adopted within established craft communities.

### **"When Small Size Matters". Final Bronze Age and Iron Age Miniature Pottery from Latium Vetus**

**Elisa Biancifiori** (Sapienza Università di Roma, Rome)

The proposed presentation will focus on the analysis of miniature pottery, associated with the cremation burials in Latium Vetus from the Late Bronze Age to the Early Iron Age (11<sup>th</sup> - 8<sup>th</sup> century BCE). The presentation will report on the miniaturised vessels in the funerary contexts as the outcome of a specific ritual behaviour, which carry out the small-scale reproduction of particular types of vases. Attention will be drawn to this production as an expression of skilled handcraft, characterised by a high degree of accuracy in the technologies of both moulding and decoration, so as to provide an exact copy of the normal size pottery, from which they differ only in terms of dimension. Miniaturised vessels will be examined as a peculiar pottery, made "*ad hoc*" at the time of destabilising social events, such as the death of an individual. Attention will be focused on the relationship between miniature and "normal size" vessels, as two parallel, though closely connected, productions. Lastly, the presentation will ponder on the functionality of these objects and the difference between functional features and actual usage value.

### **Early Iron Age Greek Tripod Bowls in Context. About the Function of a Shape and Its Metal Prototypes**

**Maria Grazia Palmieri** (Scuola Archeologica Italiana di Atene, Università degli Studi di Napoli "L'Orientale", Università degli Studi di Napoli "Federico II", Naples)

The so called "tripod bowl" is an open shape characterized by the presence of three legs with a square or rounded section and vertical loop handles placed above a pair of horizontal ones. Whole or fragmentary examples of this shape are known from both tombs and settlements from the EPG, but they are not so commonly found in Greek sites dating to the Early Iron Age. The morphological features of these vessels are clearly related to metalwork: their parallels are indeed bronze and iron tripod cauldrons, which are generally interpreted as items of prestige and expressions of an aristocratic *status*. Bronze and iron tripods and *lebes* raise problems of chronology and continuity between the Late Bronze Age and the Early Iron Age. The continuous production of the tripods is under discussion and according to some scholars, the appearance of clay tripods cannot be seen as copying of contemporary metalwork, but as a substitution for it. The present paper aims to collect the known examples of tripod bowls in PG and G Greece and to investigate their connections with the bronze Greek prototypes, the possible Cypriot inspiration, and, at last, their function into the contexts in which they were discovered.

### **Measuring Changes in Pottery. Rome, Middle of the 9th - First Half of the 7th century BC**

**Elisa Gusberti** (Sapienza Università di Roma, Rome)

One of the main purposes of ceramic typological classification is the distinction in phases characterized by types. Key instruments for their definition are the tables of statistical and combinatorial associations that can also provide data con-

cerning the transformations, allowing us to enucleate moments of stability, distinct from those in which the shift is sudden. My aim is to measure the rhythm of change in pottery productions by applying statistical methods (indices between typologically relevant measures, combinatorial associations) and by displaying data through charts that highlight continuity and ruptures. I will examine Roman funeral, domestic and ritual contexts from the Early Iron Age (phase 2; about 850/25-725 BC) to the beginning of the Orientalizing Period (about 725-650 BC), analysing the transformation of some specific shapes, to address issues such as: • Increase or decrease of types over time. • Emergence of new types, opposed to models where there are strong links with the tradition. Morphological variables of different types associated with each other. • Changing forms or types function through time. • Morphological variables of different types associated with each other. • How new experiments continue through time. • How changes correspond to technological innovations. • Different patterns of change depending on the type of context. • Reasons for the changes (functional, ritual, technological, external influences).

### **Experimental Signs: Symbolic Decoration, Function, and Technique of so-called “Spiral Amphorae”**

**Chiara Mottolese** (Sapienza Università di Roma, Rome)

This paper aims at analysing the decoration of the brown impasto “spiral amphorae”, found in Central Italy and dating from the second half of the 8<sup>th</sup> to the 7<sup>th</sup> century BCE. Such decorations are characterized by a large double spiral incised motive, always embraced by two bands of curved lines. These amphorae often present numerous accessory decorations placed on the remaining spaces of the body of the vessel. They are drawn from geometric, floral, animal, and figurative repertoires, which occur either in other ware classes or exclusively in the “spiral amphorae”. Since these decorative motifs are realized by mixing two different techniques (incision and impression), this production seem to reflect a high degree of craft skill and experimentation. Keeping to the subject of this session, attention will be drawn on the presence of accessory elements related to the funerary and ritual world, defined by G. Bagnasco (2008) as “*vehicles for the visual and synthetic transmission of ideological and religious concepts*”. The analysis of these items, together with an in-depth investigation of their archaeological context, will provide useful data to test hypotheses about craft skills and to shed light on the social and ritual function of the amphora.

### **Diffusion and Transformation of a Particular Kind of Pottery: The so-called “Phoenician-Cypriot” *Oinochoai***

**Maria Taloni** (Sapienza Università di Roma, Rome)

The circulation of objects is often associated with the exchange of techniques and ideas, as well as with the circulation of people. The so-called “Phoenician-Cypriot” *oinochoai* are emblematic in explaining this multiform phenomenon: despite their origin in the Phoenician area, they spread out all over the Mediterranean, where, according to political, social and economical needs of local communities, they were imitated, reworked and transformed both formally and functionally. Their techniques and styles derived from metallic prototypes, but were adapted for pottery, glass, alabaster and ivory products, revealing the advanced skills of *metoikoi* craftsmen. This paper aims at analysing the hybridization of this shape, its shifting and adapting, during the Orientalizing period (late 8<sup>th</sup> to early 6<sup>th</sup> century BCE). Italy will be considered as the main case study to show how metallic *oinochoai* were imitated by the local pottery, but also how technical experiments led to the creation of complex polymaterial vases. But how, from being a personal vessel with a specific funerary function in princely tombs, the Phoenician-Cypriot *oinochoe* became a daily use vessel? To answer this question the correlation between the deep changes occurred in ancient Italian societies between 8<sup>th</sup> and 7<sup>th</sup> centuries BCE and the development of new hybrid pottery will be discussed.

### **Pottery Languages in Achaean Colonies in Calabria (South Italy)**

**Maria Rosaria Luberto** (Università degli Studi di Firenze, Florence)

This paper will present an analysis of the oldest colonial pottery series coming from Sybaris, Kroton and Kaulonía, dated between the second half of the 7<sup>th</sup> and the late 6<sup>th</sup> century BCE. By studying in detail finds recovered exclusively from surveys conducted within the perimeters of the considered urban centres, it was possible to identify five different stylistic currents, three of which are in clear connection with the major contemporary productions of the motherland (Thapsos style, Corinthian and East Greek). The other two are genuinely “colonial”, i.e. the result of rethinking at a local level shapes and decorative motifs widely attested in other contemporary productions of the Greek cities of the West and mainly - and not coincidentally - in those gravitating towards the Gulf of Taranto. This kind of philological examination has conducted to a detailed identification of the nature and relationships of the various components that, from the earliest stages of the new *apoikiai*, have suggested and facilitated the formation of an independent creative language, at the present widely known for other sectors (architecture, architectural decorations, coroplastics, ceramic with relief decoration), but not in pottery production.

### **Shapes, Rituals and Images: Preliminary Considerations on the Contexts of Attic Painted Pottery in the Seventh century B.C.**

**Giulia Rocco** (Università degli Studi di Roma Tor Vergata, Rome)

This contribution will focus on the relations among workshops, shapes, techniques, ritual practices and contexts in Attica in the seventh century B.C. Some considerations will be proposed about the commission and the production realized by work-



shops specializing in particular shapes/techniques/images. It will consider also the problem of the association between a typology and a specific context in Athens, Attic countryside and beyond.

### **The Imperfection of Mass Production: Evidence of Experimentation from the Archaic Potters' Quarter at Corinth**

**Bice Peruzzi** (University of Cincinnati, Cincinnati), **Amanda S. Reiterman** (University of Pennsylvania, Philadelphia), **Eleni Aloupi** (Thetis Authentics Ltd, Athens), **Artemi Chaviara** (Thetis Authentics Ltd, Athens)

Macroscopic and archaeometric analyses of material from the Potters' Quarter at Corinth reveal that experimentation was a regular part of the Middle Corinthian pottery industry, despite the fairly uniform appearance of the finished pots, famously distributed throughout the Mediterranean. Research to date has focused on the stylistic classification of the finds, leaving this rich source of information about ancient ceramic technology largely untapped and unpublished. This paper presents findings from our ongoing project of documenting thousands of try-pieces, wasters, misfires, and other vestiges of manufacturing, as well as results from the analysis of select samples by a handheld XRF system. The potters' debris preserves snapshots of fleeting moments in the chain of production, thus offering glimpses into workshop procedures and decision-making processes. The craftsmen, conversant in the properties of their resources, learned through trial and error, as they processed raw materials, adapted to fluctuating conditions, and responded to inevitable accidents. Moments of creative adjustments are attested for each step in the production cycle—from clay preparation and potting through decoration and firing. The potters' discards both nuance our current understanding of a prolific ware and shed light on the circumstances that gave rise to innovation.

### **Pottery Production at Crustumerium: Shapes, Decoration and Function**

**Barbara Belelli Marchesini** (Groningen Institute of Archaeology, Groningen), **Sarah Willemssen** (Groningen Institute of Archaeology, Groningen)

In 2010 the Groningen Institute of Archaeology started the project "The people and the State, material culture, social structure and political centralisation in central Italy (800 - 450 BC)", an interdisciplinary project carried out in collaboration with the Soprintendenza Speciale per i Beni Archeologici di Roma and funded by the Netherlands Organisation for Scientific Research. Crucial to the project is the analysis of the cemeteries of the Latin frontier settlement of Crustumerium. The paper will concentrate on the evidence of the Monte Del Bufalo cemetery that features both Orientalizing tombs with elaborated grave inventories as well as Archaic chamber tombs with decreasing grave gifts. Thanks to its geographic position Crustumerium elaborated a peculiar material culture, affected both by Latin and Etruscan influence. The paper will point out the features of local production through the comparative analysis of the different wares, paying specific attention to painted, stamped and incised decoration, aiming at reconstructing the organisation of the local workshops and pointing out cases of artisans' mobility. The paper will also discuss the shapes of the pottery and their specific/changing function, in strict relation with the composition of the 'corredi' (grave goods) and the drastic change of the funerary ritual around 630 BC.

### **Imitations or Local Variations? The Cultural Transmission of Ceramic Patterns in the Maltese Punic and Roman Pottery**

**Alessandro Quercia** (Soprintendenza per i Beni Archeologici del Piemonte, Museo Antichità Egizie, Turin)

Imitations or local variations? The cultural transmission of ceramic patterns in the Maltese Punic and Roman pottery. Malta represent one of the most interesting case studies of the Antiquity because of its physical position which favoured cultural contacts, as well as social and economic interrelations with the Mediterranean world throughout centuries. Archaeological evidence show how the pottery attested in Phoenician and Punic Malta derived partially from foreign morphological patterns, which were adopted and adapted to a local production according the technological skills of the workshops and the relevant demand; vice versa, the evidence of the imports whose shapes were locally imitated is scarce in Malta. This phenomenon continues in the Roman period when Italic shapes were widely reproduced in the Maltese repertoire. In this paper I will focus on the imitation and local adaptation of foreign ceramic models with particular stress on the archaeological evidence and distribution in the Maltese and Gozitan sites and contexts (places of cult, tombs, household areas), as well as on technological aspects and modes of production. In addition, I will emphasise why and when this phenomenon occurred, how it affected the local material culture and which social and economic effects it generated in the Maltese world.

### **Tarquinius, Ancient Pottery Productions and Recent Results**

**Claudia Piazza** (Università degli Studi di Milano, Sapienza Università di Roma, Milan and Rome)

The present contribution concerns the strategy implemented by the team of the University of Milano for the study of the Etruscan pottery productions of the ancient city of Tarquinia since 1982. The 'monumental complex' and the Ara della Regina sanctuary have been explored so far, making it possible to examine the chronological span of all pottery productions from the end of the Bronze age to the Roman Imperial period, including their multifaceted links with the Mediterranean and Central-North European areas of the Ancient World. A system of benchmarks ('capofila') supports the study of every



attribute of the single fragment in connection with the stratigraphic evidence. This methodological approach makes it possible to organize the documentation in order to figure out the formal and stylistic choices of the community. A number of topics will be designated for discussion and implemented by the information given in the poster session. The focus of the paper on the joint undertaking carried out by the Etruscologists and experts in Archaeometry of the same University since 1998 will enlighten the technical and formal aspects of the whole pottery production considered as an integrated system distributed over a long lasting archaeological span.

### **Plain Terra Sigillata from Mursa (Osijek, Croatia): A Hybridization within Types and Decorations**

**Kristina Brkić** (University of Zagreb, Zagreb)

The subject of this lecture is unpublished plain terra sigillata discovered in the 2008 archaeological excavations of the Ban Josip Jelačić Square site in Osijek, Croatia. This material consist of more than 2000 pieces, most of them coming from the large workshops of Lezoux, Rheinzabern and Westendorf. Terra sigillata of South Gaulish origin is also present, as well as African Red Slip Ware. Terra sigillata from the Ban Josip Jelačić Square site presents interesting variations within types and decorations. The majority of them are visible on plates of Drag 18/31 and Drag 32 types, in addition with cups of Drag 33 type. Furthermore, among these artefacts can be readily found potsherds of Dech 72/Lud VS types, decorated in a cut-glass technique which reflects a tendency for imitating glass vessels. Terra sigillata from the Roman city of Mursa is a valuable source for further study of this sort of Roman pottery. Moreover, although the plain terra sigillata was mass-produced, traces of individualization are nevertheless attested on some of the pots. The main purpose of this paper is to present a hybridization on plain terra sigillata, both in terms of types and decorations, which reflects a certain level of potters' individuality.

### **The Adaptation of Italian Patterns in Cypriot Oil Lamps' Production**

**Malgorzata Kajzer** (Jagiellonian University, Cracow)

Terracotta oil lamps, which were used on Cyprus since the Bronze Age, are a very interesting and important group of ancient handicraft. Over the centuries, they were produced under strong influences from the whole Mediterranean. Early Roman production represents very characteristic relief type equipped with volute nozzle and deep, decorated disc. In general, it could be dated from the beginning of 1st century AD. First examples appeared on the island as imports from Italy. Their typical features are very good quality and red or brown slip which covered (usually) whole body. After some time, such type began to be copied and local manufacturers using imperial decoration shortly created a repertoire of motives specific for Cypriot production. Although researchers still have not find archaeological traces of local workshops, it is rather unquestionable that they have been existed – it is possible to recognize Cypriot examples based on typical Clay, worse quality of fabrication and iconography. In this paper, some examples of Roman oil lamps found in Cyprus will be presented. They have been chosen mainly from published objects from the whole island. Some of them, however, are new findings recovered from the area of agora in Nea Paphos, ancient capital of Cyprus. This site has been excavated since 2011 by archaeologists from the Jagiellonian University (Cracow).

### **Late Antiquity and Early Medieval Ceramic Ware Produced in the City of Braga and Its Surrounding Territory (Portugal)**

**Raquel Martínez Peñín** (University of Minho, Braga), **Fernanda Magalhães** (University of Minho, Braga), **Manuela Martins** (University of Minho, Braga)

Our fundamental objective in conducting this study was to attempt to determine the evolution of some of the pottery produced in the city of Braga and its surrounding territory from the beginning of Late Antiquity to the Early Middle Ages. Thus, we primarily focused on the analysis of some of the ceramic wares produced locally which have been ascribed to the periods of Late Antiquity and Early Mediaeval occupation identified in various archaeological excavations conducted in and around Braga. The analysis of these wares has confirmed that certain technological changes appeared to occur (ceramic groups, firing, etc.), giving rise to a series of types that may have been better adapted to the socioeconomic changes the city witnessed over the course of these centuries.

## **POSTERS**

### **Shifting Times, Changing Minds: Potter's Technical Know - How Evolution during the Early Neolithic in Belgium (Vaux-et-Borset, ca. 5300-4700 BC)**

**Barbara van Doosselaere** (University of Namur, Namur), **Laurence Burnez-Lanotte** (University of Paris 1, Paris)

The end of the Early Neolithic in north Western Europe is known as a time of important renewals, leading to the splitting up of the LBK into different cultural groups. In northern France and Belgium this process of cultural differentiation is attested by the onset of the Blicquy/Villeneuve Saint Germain (BQ/VSG) culture. According to the most plausible scenario, the BQ/VSG evolves out of the final LBK. Yet, we are far from consensus regarding the exact relation existing between these two distinct but related Danubian cultures. BQ/VSG pottery stylistic variability, as it shows both standard-LBK and non-LBK

influences, is here particularly intriguing. In this paper, ceramic evolution processes during the LBK-BQ/VSG transition will be discussed in terms of pottery technology. We will present preliminary results of an ongoing research grounded on a high-resolution multi-proxy technological analysis of the LBK-BQ/VSG ceramic assemblages from the site of Vaux-et-Borset (Belgium). Main Analytical tools include optical microscopy, XRPD, SEM-EDS and radiography. This detailed reconstruction of potter's technical know how, by highlighting specific re-composition and hybridisation dynamics - or bricolage, to coin Levi-Strauss – leads us to readdress paradigms of culture change during the LBK-BQ/VSG shift.

### **Understanding Ceramic Production, Standardization and Craft Specialization of Dilmun in the Second millennium BC: Chemical Characterization of Dilmun Pottery from Kuwait and Bahrain Using Non-Destructive pXRF**

**Hasan Ashkanani** (University of South Florida, Tampa), **Robert H. Tykot** (University of South Florida, Tampa)

Dilmun was seemingly a semi-peripheral entity that began to emerge in the middle of the Persian-Arabian Gulf as the Akkadians declined in the third millennium BC. The presence of Dilmun materials can be used to explore how that influence was built. Provenance studies have been used to discuss mechanisms that led to increased cultural presence, influence, and power of an elite as well as administrative authority. The control of raw materials, craft specialization, standardization of products, and the dissemination of standardized products can be used as indicators of an emerging elite, institution or ruler to manage the distribution and production to different classes. Dilmun pottery could be an indicator of increasing social complexity and emerging elite and institution. As noticed in Mesopotamia during the fourth millennium BC Uruk period. Our aims are to construct a database of Dilmun Bronze Age ceramics using trace elements Nb, Th, Sr, Y, Z, Rb, and Ba obtained with a non-destructive portable X-ray fluorescence spectrometer and to discuss standardization of Dilmun pottery as one aspect of social complexity in the beginning of the second millennium BC. Multiple spots on artefact surfaces were tested non-destructively to investigate quantitative precision and ceramic homogeneity.

### **Diversified Production of Cucuteni Painted Pottery in Eastern Romania**

**Florica Matau** (Alezandru Ioan Cuza University, Iași)

Archaeological research based on the examination of wares shape, colour, decoration and overall fabric provides a wealth of information concerning typological, stylistic and functional issues. To complement such taxonomy schemes, archaeologists often resort to an interdisciplinary approach involving physical sciences. The physical properties of the potteries like colour, texture and size of the clay particles composing them can be used in order to determine the technology of manufacture and method of firing adopted by the Cucuteni communities. The estimation of the firing temperatures throws light on the pyro-technological abilities of the Cucuteni artisans and on the pottery production scale during the Chalcolithic period in South-Eastern Europe. As there is a strong interest in revealing the basic pottery technology used by the Cucuteni communities we have investigated a significant number of pottery samples from 22 archaeological sites located in Eastern Romania by several physical-chemical analysis techniques (XPS, SEM-EDX, XRD, FT-IR). What is clear at this stage is that the pyro-technological abilities (use of high firing temperatures) seems to have remained quite the same, indicating a very high technological skill and a very traditional potter's technique, with very little change occurring over time.

### **Crafting Technologies (Basketry and Textile) and Tools Used by Sardinian and Corsican Bronze Age Pottery. Morphofunctional Analysis of a Technical Discussion**

**Kewin Peche-Quilichini** (LAMPEA UMR 7269, Aix-en-Provence)

Since the Nuragic Middle Bronze age in Sardinia and the Final Bronze age of South Corsica, an original production and regularisation technique of flat bottoms of ceramic vases emerges and spreads. This method introduces the use of discoid basketry (most probably lids) with a concentric braiding, which acts both as a support for flattening the bottom and as a tool for creating standardized diameters. This technique mainly concerns low forms such as dishes, plates and lids. It was observed through the presence of preserved distinctive stigmata printed into the clay during the firing process. This gives to the pottery a decor imitating that of the basketry. The study of bottoms also brought to light that containers were sometimes left to dry on textiles. The analysis of ceramics thus raises a twofold technical discussion between the various forms of craft and at the same time represents the only way of documenting products and tools made from perishable matter.

### **Geochemical Analysis and Preliminary Assessment in Terms of Archaeometry of Clay Sources in Amuq Plain (Hatay)**

**Pinar Gutsuz** (Istanbul Technical University, Istanbul), **Mustafa Kibaroglu** (University of Tübingen, Tübingen), **Gürsel Sunal** (Istanbul Technical University, Istanbul)

In the scope of an ongoing archaeometric study, we analysed four different Late Bronze Age ware types; Red Slip, Monochrome, White Slip I, White Slip II, unearthed at Alalakh. Major and trace element composition of the samples were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS) and X-ray Fluorescence Spectrometer (XRF). Main aim of the investigation is to determine provenance and production patterns of the wares, to explore the socio-cultural and

trade relation of the Alalakh to the neighbour regions, e.g., to Cyprus. In this context, chemical and mineralogical feature of the local clay deposits in the Amuq Plain is an important part of the study. A total of 62 clay samples from 3 different sediment profile and 43 locations from various depths from the Amuq Plain were collected, processed and then fired at 850°C and powdered for chemical and mineralogical analyses. In this poster, preliminary results of the compositional characteristics of clay samples will be presented and its elemental behaviour regarding to the sample depths and the sedimentological features will be discussed.

### **An Overview of Italian Pottery Kilns in the Bronze Age and Early Iron Age**

**Agostino Sotgia** (Sapienza Università di Roma, Rome)

Starting from a systematic survey of pottery kilns attested in the Italian peninsula during the Bronze Age (2200-950 B.C.) and Iron Age (950-725 B.C.), this study will propose a classification based on the different firing methods used and their chronological articulation. The identified types are: • Open Firing • Pit Firing • Two pits with vertical or horizontal structure • Single deep pit with vertical structure • Fixed in stonework. The chrono-typological articulation of kilns not only reflects technical developments, namely the shift from simple kilns during earlier periods to more complex structures in later times, but it is also related to the organization of production. The simplest types turn out to be the older ones, however, they are never wholly abandoned, and they are documented alongside the more recent types (even within the same sites), probably as a response to the need for producing different ceramic classes. The installation of such more complex kiln types is therefore put in relation to more specialized forms of craftsmanship, as evidenced by the presence of proper production areas in various sites dating mainly to the late Bronze Age.

### **Tarquinia Geometric Pottery Productions: Recent Work**

**Alice Quagliuolo** (Università degli Studi di Milano, Milan)

The research carried out on fragments decorated with geometric patterns has turned out to be crucial for identifying modes of production and use of this ceramic category during the very first contacts between the Etruscans of Tarquinia and the Greeks. The literary review has focused so far on three possible conditions spanning from genuine Greek imports, to Western productions imitating exactly Greek models or just recalling them (d'Agostino). At the present stage, stylistic evidence is compared with the results of archaeometric analyses of elemental and mineralogical composition. Indeed, local production can be recognized on the basis of such evidence except in the case of pottery that imitates exactly Greek models in ceramic body, shapes and decoration, for which it cannot be ruled out the hypothesis of foreign artisans working in Tarquinia. The distinction among calcareous clays, such as those both of Tarquinia and Corinth, is critical and relies on the quantification of trace elements. The ability to perform such distinction has obviously an important impact on any interpretation concerning the organization of the local ateliers.

### **Tarquinia, Bucchero and Impasto Pottery: Recent Work on a Dialectic Encounter**

**Claudia Piazzi** (Università degli Studi di Milano, Sapienza Università di Roma, Milan and Rome), **Daniele Teseo** (Università degli Studi di Milano, Milan)

Bucchero pottery is a landmark of Etruscan pottery productions. Its attributes have been discussed in literature from several points of view, both with archaeological and archaeometric investigations. The systematic analysis of a relevant number of fragments from the 'monumental complex' of Tarquinia made it already possible to outline the organization of bucchero productions in terms of chronological span and ateliers. Our poster is focused on the relationship between bucchero and impasto pottery in order to investigate the beginning of the production and compare the development of the two categories of pottery at Tarquinia. Several aspects will be discussed: technological shift from impasto pottery to bucchero, their coexistence in time, affinities and differences in shapes, and decoration. Starting from the stratigraphic evidence of the 'monumental complex', the different roles played by the two categories of pottery will be examined. Archaeometric analyses are going to shed light on technological affinities and differences between impasto pottery and bucchero and to support the acknowledgment of local productions vs. imported ones.

### **Kilns and Pottery Production in the Pre-Roman Town of Veii (Etruria)**

**Barbara Belelli Marchesini** (Groningen Institute of Archaeology, Groningen)

The recent investigation promoted by Sapienza Università di Roma in the southern district of Veii (Comunità) has definitively confirmed its identification as the Kerameikos of the pre-Roman town. Such function is highlighted by the widespread presence of wasters, which suggest the urbanistic arrangement of potters' quarters in strict relation with the main road system. The potters' quarter, which is being explored from 2009 is providing evidence for kilns and infrastructures connected with the production of bucchero and other fine wares, from the end of the 7th up to the beginning of the 5th century. The site of Comunità has also yielded a large amount of fine pottery, including almost all the shapes and types produced from

the archaic period. The results of a specific archaeometric study, dealing with samples of bucchero and depurated wares, are available to preliminarily discuss the peculiar features of the local production and the provenance of the clay. The paper will concentrate on the technical aspects of the production, specifically providing new information and hypothesis about the firing of bucchero, and on the relation between the different wares, pointing out the development of the productive system and the morphological repertoire.

### **Tarquinia, Depurated Wares: Recent Work**

**Marta Recalcati** (Università degli Studi di Milano, Milan)

The present research takes advantage of the identity card of the local depurated pottery productions as carried out since 1998. The focus of the poster is the technological change in pottery production regarding the previous methods that were in use for the production of geometric pottery. The idea is to present the stratigraphic columns of specific sectors of the 'Monumental Complex' of Tarquinia in order to show affinities and differences in the use of peculiar ceramic bodies characterizing the two main sub-categories of the archaic depurated wares together with the different open and close shapes that were selected to supply the needs of the cultic practices carried out in the 'monumental complex'. In other words, the aim of the poster is to follow changes and continuities in local choices addressed to the use of a pottery production that represents a radical innovation in terms of the shape and decoration. The evidence offered by the depurated wares is also crucial to identify the shift to later productions such as those documented by the finds of the wells of the 'monumental complex' dated to the Late Roman Republican and the Imperial times.

### **A Group of Bosporan "Watercolour" Painted Pelikai from the Hermitage Museum: From Attic Model to Local Phenomenon**

**Catherine Mogilevskaya** (State Hermitage Museum, St. Petersburg)

In Classical antiquity, Attic vases were delivered to the North Pontic region, where they were very popular. By the end of the 4th century BC, the import of Attic vases came to an end. This was the reason for Bosporan ceramic workshops to start producing painted vessels that imitated Attic painted pottery. The painting technique of these items differs from that of Attic origin: instead of using black glaze Bosporan painters used a variety of added colour which was applied after firing. These vases called "watercolour pelikai" present a local phenomenon, not widely known worldwide. The report is dedicated to the variety of organic colours used for "watercolour pelikai" by Bosporan painters. Perhaps, Bosporan craftsmen tried to reproduce recipes of Greek colours, but they might use their own methods to create colours. To decide, which of the two suppositions is true, it is necessary to compare the composition of the added colours on Attic vases and on Bosporan "watercolour pelikai". The study and technical research seem to prove that the Bosporans started from and relied upon the recipes of Greek colours, but it seems likely that they also used their own ones for painting "watercolour pelikai".

### **Native Technology, Roman Vase-shape, Celtic Decoration: The Late Celtic Imitations of Black-gloss Ware in Cisalpine Gaul**

**Roberto Knobloch** (Associazione Nazionale Archeologi, Rome)

The so-called "unslipped imitation of black-gloss ware" was produced in Transpadane Gaul during the 2<sup>nd</sup> and 1<sup>st</sup> century BC. It may be considered an hybridization within different technological and aesthetic traditions: the clay body and the technology of making and firing pottery is identical to the traditional fine ware of Cisalpine Gaul, whose forerunners come from the Golasecca culture; the range of vase shapes hails from the models of Late Etruscan and northern-Adriatic black-gloss ware (by employing, nonetheless, the indigenous process of throwing); the chromatic effect of the slip and the painted decorations are typical of the fine ware from Transpadane and Lepontic region. This poster aims at showing the technological and aesthetic features of this class of pottery.

### **Replica of the Roman Ceramics Kiln from Crikvenica**

**Goranka Lipovac Vrkljan** (Institute of Archaeology, Zagreb), **Ivana Ožanić Roguljić** (Institute of Archaeology, Zagreb)

The replica of the Crikvenica Roman kiln (Cuomo di Caprio type IIb) from the 1<sup>st</sup> century was built in the spring of 2011 by the project of Crikvenica City Museum in collaboration with the Institute of Archaeology. Its structure, up to the grid, is made according to the findings of the original ground plan, to the reduced scale of 1:2. The shape of the final part of the baking chamber, an opening for charging (and discharging) and smoke openings are made according to an assumed shape which was selected based on comparative studies, knowledge and acquired experience. Construction material for the kiln was made according to the Roman standards: bricks were moulded out of a mixture made of purified clay with the addition of chaff, quartz sand and water. For the binder and coating of the kiln the same mixture of clay and additives was used, but in a different ratio. After the kiln had dried, few burnings were carried out (burning the kiln containing ceramic objects) in

order to obtain the statistical results pattern. The mass and temperature were measured during a predetermined regime of optimal parameters for the baking process.

### **Tarquinia, Pottery Productions during the Late Roman Republic and Imperial Times: Recent Work**

**Silvia Quarello** (Università degli Studi di Milano, Milan)

Recent finds at the 'monumental complex' of Tarquinia have made it possible, after thirty years of excavation, to assess the presence of pottery adhering to the current shapes of the Roman pottery tradition. The archaeological context are two wells whose sealing can be dated to the Late Roman Republic and Imperial times. The aim of the poster is to analyse the depurated wares to discuss the crucial question of local and imported products belonging to the Late Roman Republic. The depurated wares are an interesting case study since they are less represented than the cooking wares, making it possible to discuss the results of the archaeometric analyses carried out on Archaic and Hellenistic depurated wares of the 'monumental complex', on the fragments of Roman pottery from the Villa del Cazzanello, and on the fragments from the sites of Santa Maria in Castello and Fontana Nova belonging to the Medieval town of Corneto. A second task is to assess continuity and difference of shapes regarding the depurated wares of the Archaic and Hellenistic periods and check out the dissemination of the late depurated wares in the stratigraphic sequences of the 'monumental complex'.

### **Roman Pottery Kilns in Bir Showish, al-Hayz/Bahariya Oasis, Egypt**

**Stanislava Kučová** (Charles University in Prague, Prague), **Jiří Musil** (Charles University in Prague, Prague), **Pavel Titz** (Charles University in Prague, Prague)

In the settlement of Bir Showish (al-Hayz), two large production areas with facilities for the manufacture of pottery, storage and drying of finished containers, and above all, two furnaces with a shared fireplace, were located. The surface prospection revealed similar facilities at eight other places at Bir Showish, whose production satisfied the need of local population for the kitchenware, utilities and terracotta lamps. The furnaces were positioned adjacent to one another, they had rectangular shape, and their fireplaces are fully preserved. The inhabitants thus produced most of the kitchenware on their own. The settlement at Bir Showish prime came in the 3<sup>rd</sup> and 4<sup>th</sup> century AD (time the discovered buildings and furnaces are dated to). Compared to other inhabited areas in the territory, this settlement had survived through the 5<sup>th</sup> to the beginning of the 6<sup>th</sup> century AD.

### **Continuity and Change in Pottery from the Late Sasanian to the Early Islamic Periods Using Samples from Bonyad Museum and National Museum of Iran**

**Kosar Rahmani** (Bu-Ali Sina University, Kermanshah), **Javad Neyestani** (Tarbiat Modares University, Tehran)

While the rising Islamic caliphate continued its spread of Islamic values in conquered territories, well-reflected in the artefacts from that era, the pottery of the Early Islamic Period, however, shows influences from the preceding Sassanian culture. The present research is significant as it focuses on a pottery collection at Bonyad Mostaz'afan that has never been studied before, in addition to samples from the National Museum of Iran, investigating the motifs and designs found on the Early Islamic pottery as compared to that of the Late Sassanian era. We have first sketched a general picture of pottery making in the two periods, followed by a close comparative study of the shapes and designs found on the samples. Since production techniques, styles and designs are largely similar, it is difficult to distinguish the pottery of these two eras from one another. However, we have identified a handful of samples where this distinction could be drawn. Our study documents that some human figures were etched on the pottery in the Early Islamic period despite the religious prohibition on replicating human images, while the use of geometrical, abstract, and plant designs increased, as a combined Iranian-Islamic art form was being developed.



### **T03S015 - ONCE UPON A TIME... THE IMPACT OF TECHNOLOGICAL INNOVATIONS ON PERIPHERAL AREAS IN EUROPE FROM THE NEOLITHIC TO THE BRONZE AGE**

**Organizers: Daniel Neumann** (Roman-Germanic Commission, German Archaeological Institute, Frankfurt am Main), **Zsuzsanna Siklósi** (Institute of Archaeological Sciences, Eötvös Loránd University, Budapest)

Several important technological innovations occurred from the Neolithic to the Bronze Age which basically have changed the history of humanity. Archaeologists study these innovations since many decades; however they usually focus on the core areas of these innovations and model the wide-ranging impact on these societies. As a counterpoint to these narratives this session would like to address the process of adopting new technological innovations and its impact on areas that were rather in indirect contact with these hotspot areas and therefore might have had little knowledge for example about the origin or manufacture of new type of objects or so called "packages". We invite presentations to discuss the impact of new technologies on peripheral areas throughout Europe from the Neolithic to the Bronze Age and especially papers



dealing with the “transitional” moments before local communities would adopt new technologies and become themselves core areas. Further topics might be: What kind of complex changes were either attached to or accompanied by distinct new technologies. How can we model the transfer of knowledge? And finally are there alternative models to “core and periphery” when addressing innovations?

## ORAL PRESENTATIONS

### Evolution of Arrowheads in Neolithic Europe

**Kevan Edinborough** (University College London, London)

The evolution of lithic arrowhead complexity in Neolithic and Early Bronze Age Europe is reclassified with a new (paradigmatic) taxonomic system. Archaeological context, sample size and time-averaging issues are identified and addressed. We examine the cultural distance between consecutive phases at each site using a new method, and demonstrate how we can move from hypothesis testing to a model selection approach.

### Processes of Diffusion and Adaption in Central and Eastern Europe during the 5th and 4th millennium BC

**Florian Klimscha** (German Archaeological Institute-DAI, Eurasia Department, Berlin)

The paper will discuss the role of technical key innovations, like wheel and wagon or smelting and melting/copper metallurgy by discussing their points of origin, diffusion and adaption into different cultural contexts. In a second step the data is compared against networks of pottery styles or axes types. It is argued, that there is a chronological synchronism and a spatial congruence between a bundle of innovations and a specific set of prestigious items. The intensified exchange of the latter is seen as the explanation for the cascade-like diffusion of many technical innovations shortly after the middle of the 4th millennium.

### Cucuteni-Tripillia-Culture – Innovations and Their Impact

**Regina A. Uhl** (German Archaeological Institute-DAI, Eurasia Department, Berlin)

The so-called megasites of the Cucuteni-Tripillia-culture (CTC) and far reaching innovations imply a fundamental change of the social system in the fourth millennium BC. Traces for new technologies in metallurgy or the usage of the cart and the wheel indicate a certain readiness of the society to adapt and implement innovations and moreover the ability to transmit new knowledge. Several sites of the archaeological complex Kodžadermen-Gumelnița-Karanovo VI (KGK VI) in the eastern Balkans highlight an alteration in the stratification of societies. The first known copper mining areas Ai Bunar (central Bulgaria) and Rudna Glava (Serbia) or the famous burial ground of Varna (Bulgaria) with its distinctive burial tradition imply specialized craftsmen, a developed economic system, a rising population and large scale communication networks. As the CTC shows especially in its early phase strong ties to KGK VI we should ask how CTC benefits from KGK VI. Were they transmitters of goods? What was the stimulus for adapting and establishing certain technologies? The paper tries to work out the incorporated innovations within the CTC and to reconstruct their impact on exchange networks. In general it should be questioned whether the CTC can be regarded as a viable, competitive system.

### The Diversity of Neolithic and Copper Age Landscape Use and Settlement Types. A Case Study from Berettyó Region

**Daniel Neumann** (Roman-Germanic Commission, German Archaeological Institute, Frankfurt am Main), **Zsuzsanna Siklósi** (Institute of Archaeological Sciences, Eötvös Loránd University, Budapest), **Márton Szilágyi** (Institute of Archaeological Sciences, Eötvös Loránd University, Budapest), **Roman Scholz** (Roman-Germanic Commission, German Archaeological Institute, Frankfurt am Main)

From the Middle Neolithic (MN) to the Early Copper Age (ECA) important changes took place on the Great Hungarian Plain. The aim of our project which started last year is to model the changes of settlement pattern, settlement types and landscape use in the Berettyó Valley. Several studies have been published dealing with the appearance of tell settlements at the end of the MN. Most of the researchers agree that the appearance of this settlement type is due to the effect of interactions with Balkan communities. In our project we are not focusing only on the circumstances of the formation of tells, but our main questions are: Could these Late Neolithic settlements really be defined as tells? Are there any significant differences between them? Can their formation or function be described with the same model? We think that the role of these settlements cannot be understood without a comprehensive analysis of the coeval settlement network. This research aims not only the analysis of tells, but also the modelling of the inherent social and economic changes, and the modelling of the formation of the ECA, in brief the complex effect of impulses from the Balkans on the Berettyó Valley communities.



## Deep Impact – The First Appearance of Heavy Copper Tools and Their Social Role on the Great Hungarian Plain

**Zsuzsanna Siklósi** (Institute of Archaeological Sciences, Eötvös Loránd University, Budapest), **Márton Szilágyi** (Institute of Archaeological Sciences, Eötvös Loránd University, Budapest)

The existence of the independent Copper Age has long been accepted by archaeologists. With the appearance of “heavy copper tools” several significant social and economic changes took place on the Great Hungarian Plain. The spread of copper tools was considered to be one of the reasons for these fundamental changes. Due to new AMS dates the successive chronological system of Tiszapolgár (ECA) and Bodrogkeresztúr (MCA) cultures collapsed and it seems that they were partially coeval. In the light of these new results, the fact that there are considerably more copper and gold objects in Bodrogkeresztúr context than in Tiszapolgár context cannot be seen solely as a chronological difference. Lead isotope analyses suggest that the Neolithic and Copper Age copper objects stem from the Balkans, and there is no unambiguous evidence of local metallurgy in these periods. Our comparative microregional model revealed that a cultural and social uniformity which was presumed earlier might not have existed in the ECA-MCA period of the Great Hungarian Plain. We would like to present the local and regional differences among ECA-MCA communities, particularly the use and adoption of new innovations, emphasising their cultural and social background.

## The Impact of Technological Innovations on Peripheral Areas in East Asia

**Shinya Shoda** (Nara National Research Institute for Cultural Properties, Nara)

Although some of the oldest pottery in the world has been reported in this area, Northeast Asia – geographically, today’s northeast China, Far Eastern Russia, the Korean peninsula and the Japanese islands – is regarded as a peripheral area to the so-called center of civilisation on the Chinese continent. Crop cultivation, metallurgy, animal husbandry, Buddhism and Chinese urban systems were introduced in and spread from this center to the peripheral areas in prehistoric and ancient times. However, the adoption processes and the developments of material culture differ in each region due to their varying environment and cultural traditions. This paper presents the diversity of the process by which new technologies were adopted, and focuses especially on the beginnings of crop cultivation and of metallurgy during the Neolithic and Bronze Age.

## A New Approach in the Interpretation of Chalcolithic Pits in the SW of the Iberian Peninsula

**Eloísa Bernáldez-Sánchez** (Laboratorio de Paleontología y Paleobiología, Instituto Andaluz del Patrimonio Histórico, Sevilla)

The Chalcolithic sites in the SW of the Iberian Peninsula, has provided faunal remains well preserved. This register has allowed us to define the biological characteristics of animals and to interpret the trophic habits of these people. However, the most interesting result has been to add other possible functions to those already given by other authors in the fields of pits of the Copper Age in the SW of the Iberian Peninsula. Some of these structures with organic remains could be a rubbish dump or not. Probably, there are other explanations, some of them could be related to the production of fertilizer to keep the primary productivity of the fields or to store the forage needed to feed livestock.

## Early Production of Bronze Tools in an Area without Any Copper and Tin

**Mika Lavento** (University of Helsinki, Helsinki)

The paper discusses the most significant Early Metal Age phenomenon in Eastern Finland: the first bronzes. At the same time, active contact networks connected the coastal areas of Western Finland with Scandinavia. The latter are beyond the scope of the present paper. In northern Fennoscandia the arrival of eastern metals occurred soon after a serious climate and population crises in the latest phase of Stone Age (end of 3rd millennium BC). Neolithic villages were empty and there were only small hunter-gatherer groups left. Under these circumstances the novel innovation, metal technology, carried by alien so-called “prospectors” – explorers from the east – would launch a remarkable cultural change. Local production of bronze implements became possible already in early 2nd millennium BC when imported bronzes were first re-used by dwellers of the periphery. Soon after the Seima-Turbino phenomenon local axes in NW Finland already differed from those found in the taiga zone of NW Russia. Raw material for casting moulds of stone is easily available in NW Finland, and this made it possible for local hunter-gatherers to continue the production of metal tools through centuries. A former forest and lake area with just a few dwellers grew into a central area.

## Metallurgy in the Trzciniec Cultural Circle and the Peripheral Reception of Bronze

**Robert Staniuk** (Instytut Prahistorii Uniwersytetu im. Adama Mickiewicza w Poznaniu, Poznan)

Introduction and the development of bronze metallurgy is regarded as one connected with the establishment of elites, participation and control over long-distance trade connections and a need for demonstrating personal status. This wide-accepted concept is usually applied for societies rich in bronze objects, with a wide variety of forms, supposedly metal centres.

The emerging question is how bronze objects and their technology was adapted by societies or cultures, in which such finds are rather scarce? In such case, these objects must have been regarded in a rather different manner, ways of obtaining must have been contrary to such metallurgical centres and the social impact also had to be unlike. By comparing the metal objects and remains of metal workshops of the Trzciniec Cultural Circle with the centres from which imported objects and resources were acquired, a different perspective on the bronze 'package' shall be developed. It aims at presenting that a widely accepted set of traits attributed to a certain resource was rather dependant on social factors and cultural background. The necessary introduction and development of prestigious resources was not a general principle but only a possibility.

### **The Indicators of the Change in the Sardinian Society between the Bronze and Iron Age: Some Observations on Bronze and Pottery Productions, on the Monuments and Settlement Patterns**

**Anna Depalmas** (University of Sassari, Sassari), **Giovanna Fundoni** (University of Sassari, Sassari), **Claudio Bulla** (Independent Researcher, Sassari)

The transition from the Final Bronze age to the Iron Age in Sardinia is a phase of important changes. The archaeological record shows a dynamic society, that tries to adjust to current times preserving its cultural identity. Changes become evident in the different territorial organization and settlement patterns, in the new approach to religion and cults and in the craft production. The nuraghe, that still is the cultural identity symbol of Nuragic phase, becomes a sacred place and at the same time there's a flourishing of new cultural areas and monumental temples. The craft production improves in techniques and products, even relating to contacts and relationship with foreign groups. Pottery and metal artifacts are the clear proof of the change: new imported technologies and knowledge sharing led Nuragic craftsmen to produce new artifacts, but even to renew and readapt the traditional ones, according to the new styles of imported goods. It is a very important evidence of the change and evolution of Nuragic society the presence of its craft products (pottery and bronze artifacts) spread throughout Mediterranean Sea, proving their new maritime and foreign relationship skills.

## **POSTERS**

### **New Data Regarding the Usage of Cattle for Traction Purposes within the Cultural Complex Cucuteni-Trypillia**

**Senica Turcanu** ("Moldova" National Museum Complex of Iași - Moldavia's History Museum, Iași), **Luminita Bejenaru** ("Alexandru Ioan Cuza" University of Iași - Faculty of Biology, Iași)

The usage of cattle for agricultural works and also for the movement of certain means of transport is part of the so-called "revolution of the secondary products" within the prehistoric economy. Archeozoological researcher launched the hypothesis of the usage of animal power within the Cucuteni-Trypillia areal, following the identification in certain sites of bone remains belonging to castrated *Bos taurus*; only these animals could have been used for traction, given the new physical and behavioural characteristics acquired by castration. The starting point of this paper is the collection of zoomorphic plastic art from Bilcze Złote. The corroboration with similar representations within the areal of the Cucuteni-Trypillia civilization allows the authors to advance the hypothesis that certain items belonging to the zoomorphic plastic art also reflect the usage of bovine power at this chronological level. The authors provide details pertaining both to the anatomic perspective and to the technological point of view, of the used yoking system, with analogies among the materials known from other cultural environments chronologically comparable. The achieved argumentation allows defending the hypothesis that the cultures of the Carpathian Basin were already familiarized with the animal traction before the exponential dissemination thereof towards the end of the 4th millennium BC.

### **Stone Artefacts from Százhalombatta-Földvár, North Hungary, from 1998-2003**

**Éva Halbrucker** (Matrica Múzeum, Százhalombatta)

The Százhalombatta Archaeological Excavation (SAX) project has been in progress since 1998 under the leadership of the 'Matrica' Museum. The excavation of the Bronze Age fortified settlement is carried out within the framework of an international programme that was set up in order to be able to examine the differences, similarities and connections between three different regions of the Bronze Age Europe via the investigation of the way of living and the social structures of these communities. The central excavation is carried out in a 20x20 m trench, which is divided into 2x2 m excavation units, based on the UTM (Universal Transversal Mercator projection) network. During the excavation all of the excavation units are treated as individual research units regarding documentation. The 2x2 excavation units are further divided into 1x1 units if they are part of archaeological features. My research is aimed at the stone artefacts from the excavation. The aim of the poster is to present the results of the stone artefacts from the first five years. Százhalombatta was very important settlement in Benta valley in the Bronze Age. My research is aimed primarily leadership is seemed in the utilization of stones too.



## T03S016 - THE ARCHAEOLOGY OF ARCHITECTURE: TECHNOLOGY AND PRACTICE

**Organizers:** **Serena Love** (University of Queensland, St Lucia), **Corisande Fenwick** (Leicester University, Leicester)

Architecture is the hallmark of sedentism, complex societies, urbanism, power and monumentality. Big or small, sacred or profane, buildings evoke, create, and demand emotional and physical responses. They transform natural and built landscapes, rewrite past and present, and are physical representations of ideologies, memories, and quotidian life. But all too often architecture is analysed as a “finished product”, in which the technology and practice of construction - the actions, materials, labour and time invested in creating buildings - is absorbed by the fabric of the building. Following Tim Ingold and Leslie McFadyen we argue that the technologies and practices employed to make buildings are integral to any understanding of architecture and society. This session therefore focuses on the process, practice and performance of construction and the recursive interactions between people, places, and materials. We are particularly interested in examining the communicative capacity of building materials and building technologies. Papers might address how different raw materials (e.g. earth, wood, stone) are used, or the social implications of re-using material (e.g. spolia), the origins of materials, and the multi-sensory aspects of colour, texture, light and sound.

### ORAL PRESENTATIONS

#### **Biographies of Buildings and Objects: Deconstructing the Social Significance of the Re-Use of Ground Stone Artefacts as Building Material in the Neolithic**

**Christina Tsoraki** (University of Leiden, Leiden)

The main premise of this paper is that building construction is a socially informed process and the choice of building materials is a meaningful act mediated by cultural understandings. One common assumption is that the incorporation of seemingly mundane objects such as grinding tools in walls reflects practical considerations. Yet, as I argue here, this cultural phenomenon needs to be approached as a practice embedded in a wider frame of social meanings. Grinding activities were among the daily embodied practices that acted as mechanisms of socialization of members of social groups. Ground stone tools were among the key elements that defined household identity, as seen in their spatial distribution within particular settlements, and also in the inclusion of grinding tools in contemporary clay house models. Through their incorporation in the fabric of buildings, they became ‘history objects’ and played an important role in the expression of household identity and the construction of social memory. These issues will be explored through analysis of Aegean and Anatolian Neolithic case-studies. A close reading of construction techniques (e.g., mudbrick vs. stone walls) and recycling practices will allow us to unravel the biography of both objects and buildings and approach them as an entangled practice.

#### **Constructing a Stone Age House: The Intricacies of People, Tools and Materials**

**Annelou van Gijn** (Leiden University, Leiden)

In the summers of 2012 and 2013 a reconstruction was made of a houseplan attributed to the Neolithic Vlaardingen culture (c. 2500 BC), excavated in the Rhine Meuse delta of the Netherlands. We focused on the process of house building, closely examining the interaction between the Stone Age tools used, and the, often inexperienced, users of these implements. We could thus examine which tools were favourite and examined the learning curves of individual users of different tools like the stone axes. We also investigated the interaction between the various tools and raw materials, documenting efficacy, resilience, and efficiency. We documented the biographies of all used implements (made of stone, bone, antler and wood), involving microwear analysis as well, thereby connecting the present experiment with the past. Obviously, we also quantified all building materials and building times. In this paper I will focus on the interactions between people, tools and materials, and how these changed during the process of house building.

#### **Observations about the Kodjadermen-Gumelnița-Karanovo VI Architecture Based on a Study of Experimental Archaeology**

**Sebastian Stan** (National History Museum of Romania, Bucharest), **Cătălin Lazăr** (National History Museum of Romania, Bucharest), **Theodor Ignat** (Museum of Bucharest, Bucharest)

The interpretive approaches of architecture from the Neolithic period and the archaeological excavation offers us only fragments of data, like the pieces of a puzzle. Despite the apparent freedom of theorizing that prehistoric discoveries offer, the archaeologist and architects are constrained by the existing data, which leads inevitably to speculative hypothesis, exaggerated or unrealistic, based heavily on the imagination of the researcher. In this circumstances, the experimental archaeology makes a major contribution to the overall knowledge and to the understanding of the past, thus further facilitating the implementation of a high quality interpretive approach. The experimental archaeology project presented here covers the reconstruction of a Gumelnița culture dwelling (the 5th millennium BC), based on relevant archaeological data. This reconstruction was paired by an inquiry of the volume of materials used for raising the construction in conjunction

with the human factor and the time needed for building. This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS – UEFISCDI, project number PN-II-ID-PCE-2011-3-1015.

### **Building Technology at Arslantepe. Inferring Social Meaning through the Early Bronze Age Construction Systems**

**Giovanna Liberotti** (Italian Archaeological Expedition to Eastern Anatolia, Sapienza University of Rome, Rome),  
**Corrado Alvaro** (Italian Archaeological Expedition to Eastern Anatolia, Sapienza University of Rome, Rome)

In recent years researchers have been giving an increasingly important role at the practice of construction in the ancient world. Considering the built landscape as the way in which humans have been organizing and shaping the space, one should be able to extract social meaning from it. Main goal of an ongoing interdisciplinary study on the building materials and the construction techniques at Arslantepe, in the province of Malatya (Turkey), is to point out changes and continuity in building techniques as a mirror for changes and continuity in social organisation. This project focuses by analyzing physical and mineralogical properties of the main raw material, the earth, used in the construction of residential compounds, temples and fortification walls, as well as by studying the manufacturing process of mud-bricks and mud-plaster towards a better understanding of the economics and social structure which was behind large or family-based building activities. In order to achieve this goal particular attention is given to the architecture of early bronze settlements (VIb, VIc and VId levels), when some abrupt interruptions occurred in the continuity of the cultural, organisational and socio-economic development of the Arslantepe society, as well as in the site's external relations.

### **Bronze Architecture in Caucasus – Between Economic Demands and Social Representation**

**Sabine Reinhold** (Eurasia-Dept. German Archaeological Institute, Berlin)

Architecture in human life-space is an omnipresent phenomenon. Weather permanent or mobile, architecture shape artificial life-scapes, structure and determine social environments. Architecture thus is a most important aspect investigating the negotiation of social relations as the social appropriation of space. Focusing on a multifunctional house-type combining living quarters and stables of late Bronze Age date in the high mountains of north Caucasus, it is possible to follow the innovative spurs of a mountain architectural tradition. During the 14th/13th century BC a specific type of settlements with a newly developed double roomed house-type was invented, as a respond to economic and social stress. First-time, animal and humans were localised under one roof, creating new interaction spheres and demanding new practices of dwelling. These houses are built of stone-sockets with massive wooden superstructures, sharply differing in aspects of dwelling to earlier, less massive buildings. Moreover, the newly developed architecture is grouped in connected rings, accessible only in restrictive way. In developing these architectural features, the settlers used spatiality and architecture very particularly to regulate the social and economic affairs of each household in the settlement. The power of architecture was used in shaping a corporative design that neglected individuality and social fission.

### **Understanding Vernacular Architecture in Late Minoan IIIC Crete**

**Kevin T. Glowacki** (Department of Architecture Texas A&M University, College Station, Texas)

The built environment of Late Minoan IIIC Crete (c. 1200–1050 BCE) offers a striking contrast to the formal and often monumental architecture that characterizes the palaces, villas, and settlements of the preceding Neopalatial period. Relying largely upon locally specific building materials and traditions, LM IIIC architecture expressed the environmental, technological, and cultural norms of each community. This paper investigates the vernacular architecture of the Late Minoan IIIC period, focusing on the settlement of Kavousi Vronda and select other sites in east Crete, to consider the role of materials, construction techniques, topography and visibility in communicating function and status. The settlement at Vronda, for example, consisted of 15–20 houses, a cult building, and what may be a ruler's dwelling. All of the buildings were constructed of local materials, but differences in size of stones used, quality of assembly, scale, and setting clearly indicate the intention of the builders to distinguish special status structures from domestic complexes. In this way, the vernacular architecture reveals deliberate choices made by the inhabitants to express social and ideological relationships.

### **Mud Brick Architecture and Manufacturing Practices in the Egyptian Delta**

**Marta Lorenzon** (University of Edinburgh, Edinburgh)

Mud bricks appear to have been one of the most common building materials used in domestic architecture in Egypt. Well-preserved earthen construction materials from the site of Tell Timai, ancient Thmuis, a Greco-Roman-Egyptian site in the northeastern delta, have been analyzed with regard to their macro- and micro-morphological characteristics to investigate the manufacturing technology and the potential use of specific recipes. Preservation of the standing architecture will contribute greatly to the study of Graeco-Roman-Egyptian life. As the mud brick architecture is rapidly deteriorating around the delta due to natural erosion and human encroachment, the results of the analyses can be used to work on the

conservation of the standing earthen architecture. Mud brick technology and practices are an integral part to understand Egyptian architecture and society outside the monumentality of temples. Shedding light into the delta production can give a different perspective on mud brick manufacturing and practices, the results suggest so far that there is a degree of standardization in the recipes, the manufacturing process and the selection of raw materials.

### **Quarrying and Building Techniques in the Talayotic Culture - Iron Age, Menorca, Spain**

**Amalia Pérez-Juez** (Boston University, Boston), **Paul Goldberg** (Boston University, Boston)

The island of Menorca, Spain, hosted the development of the Talayotic culture in the first millennium BC. During this period, the landscape was transformed by the construction of megalithic structures, both for public buildings –watchtowers and sanctuaries– as well as private buildings –domestic spaces, storage areas–. These striking features have been extensively studied in recent decades. Archaeological projects have dealt primarily with the description of architecture and the objects found in them. Interestingly enough, there has been very little attention paid to the provenance of raw materials and quarrying techniques. A similar lack of interest applies to the inter-building spaces in the settlements or non-architectural environments. These ‘inter-architectural’ areas have wonderful potential for understanding the complete fabric of the living space and can serve to weld activities within individual dwelling spaces to communal areas. In this paper we present some initial results of our excavations at Torre d’en Galmés, Menorca, regarding technology, building material and urbanism in a huge urban complex. This will contribute to a greater understanding of the large site as a whole, quarrying and building methods specifically, and how this affects the entire layout of iron age settlements on the island.

### **Architectural Communication**

**Susanna Eklund** (Societas Archaeologica Upsaliensis, SAU, Uppsala)

This is a paper where the material originates from an excavated Viking age site, Malma, Uppland, in central Sweden. In the paper I intend to show how architecture can be used in very different ways at the same site and communicate different agendas. The Late Iron Age was an innovative time concerning architecture in Scandinavia and we can see many different types of buildings in the material. Among the examples I will discuss further from the site; we have a concentration of pit houses (grubenhäus), we have an extremely large traditional three-aisled longhouse, and an almost as long so called hybrid house. The hybrid house is a fusion between two building techniques, essentially it’s a one aisled building that also encompasses an inner structure. This is a case of where innovation meets tradition, where new ideas are incorporated, but not to be fully trusted. Through size and placement in the landscape and building material, the houses communicate different things, and come with different social implications. Huge houses on an exposed plateau is a way off “showing off”, an attempt to manifest certain power. These three examples also clearly show how different people had access to different spheres in the society.

### **Reinventing the Acropolis: Archaeology, Architectural History, and the Construction of Memory on the Athenian Acropolis**

**Nancy L. Klein** (Department of Architecture, Texas A&M University, College Station, Texas)

The Acropolis of Athens is perhaps the most famous monument of Greece and a symbol of its ancient heritage. Our contemporary view is dominated by the Parthenon, a vision that reflects the acme of Athenian culture in the classical period but eclipses thousands of years of human activity before and after that time. Archaeological excavations in the nineteenth century revealed hundreds of fragments of architecture and sculpture from the archaic and early classical periods. Although basic reconstructions of the buildings have been published, a detailed examination of the architectural and archaeological evidence is lacking. In this paper, I look beyond the façade reconstructions to examine the architecture of the Acropolis before the Parthenon. My formal study of architectural fragments provides the basis for understanding the life history of each building (When and how was it built? What did it look like? Was it destroyed or dismantled?), while consideration of the archaeological context where they were found identifies patterns of disposal and reuse. The results suggest that the early buildings were evaluated and reused as part of a deliberate process of oversight and planning that was fundamental to the construction of memory and identity on the Classical Acropolis.

### **Yet Another Brick in the Wall? Monumental Construction Practices at LBA Tiryns, Greece**

**Ann Brysbaert** (University of Leiden, Leiden)

While Mycenaean monumental architecture has been well-studied, its contribution in understanding better the socio-economic and political changes indicative of the LBA palatial and post-palatial periods in the Argos Plain has been less explored. The paper presents the first results of on-going investigations in human and material resources, interactive in Tiryns, which elites(?) mobilized to implement their monumental building programmes. Through employing multiple chaînes opératoires and cross-craft interaction approaches, practical building processes and inherent social practices may be captured in each step of the work. New field-collected data are compared with and tested against published and archival data.



By applying architectural energetics – an econometric modelling procedure translating buildings into cost-estimates with labour time-units invested – minimal estimates of how such constructions may have been achieved, are calculated and interpreted. Subsequently, monumental building activities and their possible societal impacts are placed in the larger context of crafts, domestic and other agricultural activities of that period. The paper aims thus to investigate how communication lines between different social groups became embedded in the material modifications over time in the landscape. In doing so, it reconstructs a retrospective ‘impact assessment’ of human and environmental, material resources, here specifically linked to Tiryns and its monumental citadel.

### **Official and Unofficial Use and Practice: Material and Architectural Re-Use in the Urban Marginal**

**Martina Hjertman** (University of Gothenburg, Dept of historical studies, Gothenburg)

Additional aspects for understanding architecture and society, besides analyzing technologies and practices in building-making, are essential. A building is never “finished” as object; important to study is the “re-use” of whole buildings. The effects and uses of completed buildings cannot always be predicted or directed. There are certain aspects of unofficial use, which cannot be reached by studying raw material and construction. To examine how already existing architecture actively has been used in the continual making of future architecture and urban places, the concepts of iteration (Jacques Derrida) and connection will be helpful: this to analyze how aspects of existing architecture, for ideological reasons, are reconnected to, or iterated, i.e. Copied or mimicked with slight differences in a new context. There is also a point to study unofficial, non-planned architecture, or buildings not consistent over time. Here lie dimensions important for a more comprehensive understanding of a society. “slums” have usually a temporal architectonic character, but prevalent as phenomenon over time; a sedentary living lacking monumental architecture, which re-uses building materials from officially planned city parts. This more theoretical paper will use highlighting examples from archaeological and urban contexts from different times and urban places, to discuss questions hinted above.

### **Building Techniques as a Reflection of Historical and Social Changes. The Case of the Baths of Elaïoussa Sebaste and Its Comparisons**

**Emanuele Casagrande Cicci** (Sapienza-University of Rome, Rome)

The conquests of the Roman Empire in the East, above all in some peripheral regions, had a significant impact on the economy and welfare of their inhabitants: the social and cultural changes brought forward by Rome favoured in new territories the introduction of new building techniques as a reflection of the Romanization process of a new domain. Concerning the province of Cilicia we will focus our attention on the bathing complexes of the harbour city of Elaïoussa Sebaste (modern Ayaş), situated in southern Anatolia: the baths of the settlement well display the technical transformations of the region during the Roman rule. It is not by chance that the introduction of new technologies, as evidenced by the Elaïoussa Sebaste “Opus mixtum” baths, testifies the circulation of men and ideas from centre to periphery of the Empire. The adoption of the Roman brick all over the province, together with specific building techniques as the opus reticulatum, are another proof of how the technological development could be conveyed by a central power. In this general approach, starting from the macroscopic and metrological observation of the bathing architecture the Roman technical imports and the architectural peculiarities of the province of Cilicia will be highlighted.

### **Recycling a City: Building Technique and Continuity at Apollonia Ad Rhyhdacum**

**Güven Gümüş** (Uludağ University, Bursa)

Apollonia ad Rhyhdacum is the ancient name of the Gölyazi, a few kilometers away from Bursa (prusa). Bitinia as many other areas within Anatolia offers a variety of raw materials for architecture. After Nicea Apollonia represent the best preserved architecture in the region. The main difference with other sites in the area is in the fact that occupation at Apollonia has been protracted from antiquity up to modern times. From the Hellenistic period, to the Roman, Byzantine, Ottoman and modern Turkish republic times, the city presents a continued vertical stratigraphy which is still in use nowadays. The unique aspect of this evidence is that, while in other sites different areas of the city preserve architecture dating to different periods, at Apollonia is identified not only at the level of urban planning, but sometimes also within the same buildings. Architectural surveying has represented a critical tool in order to establish this complex sequence and the building techniques and different materials corresponding to each historical period.

### **New and Old. On Identity, Building Materials and Building Typologies in Early 13th-century Church Architecture in Bruges (Belgium)**

**Vincent Debonne** (Katholieke Universiteit Leuven, Leuven)

In Flanders (Belgium), the period 1150-1250 was a time of profound change. Flemish trade became more international while population grew explosively, as evidenced by the growth of cities and the reclamation of wastelands. The building trade was likewise marked by innovations, the most apparent one being the introduction of brick in the early 13th century. While brick



enabled the application of new building techniques in a gothic architectural design, stone did not immediately disappear from the building trade. In and around Bruges, during the first half of the 13th century, the use of stone in brick churches was not so much a matter of economy of materials, but rather served to convey the self-assumed venerable age of one's own ecclesiastical institution. In the same manner, century old building typologies – in casu, the Westbau – were revived and, although stripped of their initial liturgical function, used to assess the primacy of one church over the other. Thus a remarkable symbiosis was created between new building materials and techniques, and traditional materials and building typologies.

### **Making New from Old: The Process of Rebuilding in 16th century York**

**Stefania Merlo Perring** (University of York, York)

The last quarter of the sixteenth century was a period of change in York, in which medieval buildings were substantially redeveloped. This is particularly evident in the religious precincts after the reformation, where domestic buildings were transformed with the introduction of new features, but retaining and re-using timbers and stones, in addition to new bricks. In late-medieval York materials determined the identity of each craft, but from the 16<sup>th</sup> century it appears that the technology of re-use changed the working practices of the local craft community, blurring the boundaries between previously distinct identities. Moreover, the knowledge of the builders in conducting excavations on the site of the Roman fortress and the appropriate use of building material is demonstrated by both archival sources and archaeology of buildings. The walls of the redeveloped buildings openly displayed wall-scars, irregularities and the disparate nature of the re-used materials. In this paper, underpinned by post-structuralist semiotic of architecture and 'object- relation' psychology, I will argue that the visibility of the mended fabric was communicating important messages of continuity in post-reformation York. This represented the familiar element, the 'ontological security', which mediated and supported change and innovation in the building themselves as well as in society.

## **POSTERS**

### **Architecture Decoration from Malkoto Kale Near Voden, Bulgaria**

**Stefan Bakarjiev** (Yambol Regional Historical Museum, Yambol)

Malkoto kale represents Medieval castle. The site is situated near Voden Village. It's situated on small pick accessed only from South. The area of the site is 0.09 ha. The castle appeared in 10 c. when modern-day Bulgarian lands are included in the borders of Byzantium Empire. Malkoto kale was destroyed at the end of 12 c. during the Third crusade, lead by Friedrich Barbarossa (1122 – 1190). In 1189, German crusaders crossed the territory on Thrace on their way to the Holy Lands. The aim of this poster is to present the architecture decoration of the buildings in Malkoto kale. During the archaeological excavations, a western fortress wall with two of its towers, one circle in shape and one rectangular, and a line of rooms situated near the western wall, were discovered. The buildings are decorated with brick niches and with rows made from bricks and mortar. The rectangular tower is decorated with a ceramic decoration, situated on two rows. All these decorations are typical of the rich towns in the Byzantium Empire during 10-12 c. Their presence here shows the importance and wealth of the owner of the Malkoto kale.

### **Study of Talaiotic Monuments in Mallorca: Preliminary Results**

**Maria Gelabert Oliver** (Graduate School Human Development in Landscapes, Kiel University, Kiel)

The tower-like talaiotic monuments of Mallorca (Balearic Islands) are emblematic and well-dated architectonical features built between ca. 900 and 550 BCE. These buildings represent nodal structures of talaiotic settlements, having important social and economic functions. Given their size and communal character, talaiotic monuments represent shared values into which a collective and considerable amount of work was invested. The study of the invested work in the construction of talaiotic monuments offers an estimate of social value. Obtaining such estimates represents the first phase of a research programme that will define the distribution of social intensity in Mallorca during the talaiotic period. The spatial distribution of social intensity allows for a study of its relationship with environmental variables and a definition of the social space during the talaiotic period. The research carried out so far consisted in the study of construction methods, dimensions and structural characteristics of talaiotic monuments. Analysis of this type of data provides the necessary information to estimate invested work during monument construction. Implemented methods, obtained results during the first research phase, and preliminary interpretations will be presented.

### **Constructing Ideal World: Architectural Concept of Roman Gardens in the Province of Gaul**

**Valéria Uramová** (Institute for Classical Archaeology, Faculty of Arts, Charles University, Prague)

The aim of this poster is to define the garden types, features, and their position within the architectural layout of other buildings in the Roman villa complex. The chronological changes in the concept of the garden design will be studied until the end of Late Antiquity in Roman Gaul. Further attention will be given to the techniques in constructing a garden itself.

We will take a look at ways of constructing garden's individual architectural elements such as pools, pergolas etc. and the materials used in its structure. Several construction phases documenting the changes of garden architecture were excavated at some sites (Vaison-la-Romaine, Saint-Romain-en-Gal, Mané-Véchen, Richebourg, Montmaurin, Orange). The most frequent type was the ornamental garden in the central peristyle with the rectangular cooling pool, a pool in a shape of letter U or a pool in a crescent form. This type of a garden was also accompanied by the statue bases or by the pergolas as in the Maison de Dieux Océan in Saint-Romain-en-Gal or in the villa suburbana "La Brunette" in Orange. The influence of Campanian gardens is reflected in Roman gardens in Gaul and there could be observed many analogies from gardens in residential complexes in North Africa.



### T03S017 - THE MATERIAL AGENT IN TECHNOLOGICAL PROCESSES

**Organizers:** Isabelle Vella Gregory (University of Cambridge, Cambridge), Sheila Kohring (University of Cambridge, Cambridge), Alison Klevnäs (University of Stockholm, Stockholm)

The embeddedness of technology in society is, by now, well established. However, what of materials themselves? Traditionally, materials were considered the defining features of technologies and even of human epochs. Yet paradoxically, they were seen only as passively manipulated within the technological process, with the 'product' or 'artefact' as the conceptualized outcome. Recent cross-disciplinary approaches renewing our interest in technologies have demonstrated its inextricable social role and it is time to take a closer look at the ways in which materials themselves facilitate and shape technological practices, processes, and social relations. This session explores the social relations of technologies by foregrounding materials as active agents in shaping the objects, ideas, and organizing principles of the communities which use them. Questions of procurement, materializing practices, re-use, contact, creativity, and social boundaries are all areas to be explored. We welcome papers on a broad range of materials and periods.

### ORAL PRESENTATIONS

#### Materials for the *Chaîne Opératoire*: A Historical Appraisal

**Nathan Schlanger** (INRAP / UMR TRajectoires, Paris)

In the middle decades of the twentieth century, a change in attitude towards 'materials' can be perceived in archaeological and anthropological research. Alongside their use as markers of progress or their cultural attribution, materials are also understood as a significant factor in the spread of objects and ideas across time and space. Moreover, they serve to grasp the relations between the form and function of the artefacts of which they are made, and also to highlight the importance of the technical process of manufacture and use in which they are implicated. In the French research tradition, a particularly original perspective on this implication of materials, their properties and even predominance in these processes can be found in some of André Leroi-Gourhan's publications. I will briefly present relevant aspects of this work, and then examine whether some genealogical relations can be conjectured between these early ideas and some more recent notions of 'affordances' or 'materiality', within the now expanding field of material culture studies.

#### Working with Clay in the Arctic: Exploring Material Engagements in Prehistoric Coastal Alaska

**Ana Jorge** (University of Aberdeen, Aberdeen)

People made and used pottery in Alaska since at least the first millennium BC, though by the early 20th century AD it had virtually disappeared. Despite this long time span, encompassing different archaeological cultural traditions and dramatic changes since at least the 18th century, pottery studies have tended to produce essentialist accounts of prehistoric ceramic technology. Dominant discourse has focused on the efficacy of ceramic vessels as cooking pots – largely an extrapolation from 19th century ethnography. Pottery is often cut off from its connections to other artefacts and materials – including clay itself. Yet, working with clay in arctic environments with almost year-round permafrost would have entailed very different engagements with soil and landscape. Clay seems to have been reserved for very specific uses in prehistoric Alaska (vessels, lamps), being entirely absent from the extensive repertoire of figurative objects (e.g. figurines and dolls). Ceramic vessels are also much less frequent than carved and bentwood containers; however, their making would have afforded other possibilities for experimentation and expression that drew on specific material entanglements. This paper will explore ways of rethinking arctic pottery by bringing to the fore materials and technological practices, drawing on material from the Kuskokwim Bay (14th-17th century AD).

#### Fibre Transformations

**Lise Bender Jørgensen** (NTNU - The Norwegian University of Science and Technology, Dept. of Historical Studies, Trondheim)

How did the procurement and processing of fibres such as wool, flax or hemp influence prehistoric communities? Each requires considerable work, involving most members of a household and entirely different *chaîne opératoires*. They also have

very different properties that influence how they are used, and for what. Wool emerged as a new fibre in Europe on the threshold of the Bronze Age, with the introduction of woolly sheep. Grasses, bast made from various trees, and flax were the main sources of fibres in the Neolithic. The paper explores how this new and very different fibre was received, what it was used for, and how its procurement - involving animals, shepherds, and new ways of harvesting - may have transformed social relations and ways of thinking.

### **From the Physical to the Social: Iron as a Technological Enabler**

**Kevin Garstki** (University of Wisconsin-Milwaukee, Milwaukee)

The behaviors, actions and symbolic associations facilitated by iron as a material had broad social repercussions as iron technology developed alongside and in many cases replaced bronze in Western Europe. The location of iron ores impacted the procurement possibilities and differential availability of iron, while the physical properties of the material structured the techniques of production, the objects produced, and their use in society. In this way, iron technology was reciprocally maintained through the affordances of the material itself and the social embeddedness of technical practice. This paper will address the materiality of iron as enabling the behaviors of production as well as the societal implications that arose with the production and use of iron. The Late Bronze Age to Early Iron Age (900-400 BC) transition in Ireland will be used as a case study to view technological process as mediated through the materiality of iron.

### **“You’re Indestructible...” Iron Age Gold in Context**

**Jody Joy** (Museum of Archaeology and Anthropology, University of Cambridge, Cambridge)

Gold has long been valued because of its special material properties. Some societies ascribe a value to gold because it does not tarnish or corrode, whereas others value its colour and shininess. In this paper I will examine the technology and social role of gold objects in later Iron Age Britain. Until gold neckrings or torcs were first made during the third century BC gold had not been used since the late Bronze Age. The gold used to make torcs probably came from continental coinage. By around 60 BC torcs go out of usage in southern Britain and gold is used to make coins. Two material properties of gold, the fact that it is easily melted down and that its surface colour can be altered through alloying, were particularly important. However, so were social factors. Bronze, like gold, can be melted down and reformed but it is used relatively conservatively throughout the Iron Age using similar quantities of copper and tin, perhaps because of social conventions regarding the ‘correct’ colour and surface properties of bronze. In this paper I argue that the re-introduction of gold allowed metalworkers to ‘break free’ from these conventions and experiment with a new material.

### **Bone Implements in Prehistoric Societies: A Case of Barcın Höyük in North-Western Turkey**

**Mücella Erdalkıran** (Ege University, Protohistory and Near Eastern Archaeology Department, Izmir)

Bone is not a raw material which exists in nature; it is a waste substance resulting from meat consumption but becomes a plus product by virtue of the transformation which it undergoes in processing. Despite the fact that bone implements are fashioned from readily available materials, the labour and the processes each piece goes through in production transforms it into a useful object. Bone was utilized intensively in everyday life ranging from the making of flint/obsidian implements to cooking and serving food, and textile production and sewing as well as fishing to soil cultivation. Some bone implements may even have been prestige goods and ornaments. In short, bone implements were undeniably essential to Neolithic societies and have played an active and transformative role in the everyday lives of Neolithic inhabitants. In this paper, bone implements will be presented by considering them from the perspective of Barcın Höyük – a Neolithic village in the north-west of Turkey. In this context, the types of these implements, their production techniques and for what purpose they were used will be elucidated.

### **Beyond Needs and Wants: Storing Staples in Roman Italy**

**Astrid van Oyen** (Homerton College, University of Cambridge, Cambridge)

Traditionally, storage is interpreted through a dichotomy between needs and wants. On the one hand, storage assures the *physical* subsistence needed for survival, on the other, storage manages the surplus ‘over-and-above-needs’ that helps build *social* relations. Following recent critiques of the material/social divide, this framework proves unhelpful, and a different model is needed to do justice to the role played by physical materials in storage practices. In this paper, I will build on my contextual analyses of storage at three different scales in Roman Italy: in the large port sites of Portus and Ostia, in villas in Central Italy, and in the urban and domestic spaces of Pompeii and Herculaneum. To explore the role of materials beyond a framework of needs and wants, I will draw out three kinds of products that were stored in these contexts: wine, grain, and water. These products came with different physical affordances for storage: wine ripened, while grain went bad, and water did not alter its state. An exploration of how these affordances were implemented in different contexts will show that the properties of materials did indeed play an active role in technological processes, but that we need a non-deterministic framework to account for this role.

## Water Supply Systems in East Plain Cilicia

**Füsun Tülek** (Kocaeli University, Izmit)

Roman settlements of East Plain Cilicia built water supply systems, the remains of are found scattered in proximity of these ancient towns. Most of these Roman water supply systems in the region are disconnected, out of function and even fell into oblivion, whereas some of the Roman fountains with pools are in use at present. Grandiose ruins of aqueducts are picturesque and embellish the landscape of the ancient cities, such as Anazarbus, Hierapolis Castabala, Epiphaneia, and the ancient port Burnaz. Water tunnels, surfacing ground or in ground with revealed cut sections, channels, stone pipes, cisterns and fountains with pools, as well as, aqueducts are remains providing evidence of a great variety of water supply systems which have been facilitated in East Plain Cilicia. Recent research has focused on ancient water supply structures particularly in territory of Toprakkale as well as the town of Sumbas. This project collected considerable amount of data pointing to enormous effort put in to supply water to settlements and ports during Roman Imperial period in the region. The ongoing project has uncovered an ambitious and sumptuous water supply system which seems to have functioned well into the Late Antique Period, probably even to the Medieval Ages.

## Inalienable Materials and Ephemeral Forms in Early Medieval Craft Production

**Alison Klevnäs** (Stockholm University, Stockholm)

Materials, technologies and contexts of production have traditionally been neglected in early medieval studies, with the focus instead upon the forms, typologies, dates, ethnic associations, exchange values and symbolisms of excavated artefacts. This paper uses the widespread practice of grave robbery in the Merovingian kingdoms as a window onto contemporary understandings of different materials and object forms. Reopening burials and retrieving grave-goods was endemic in the period, but only certain object types were taken. It is argued that these were artefacts whose durable, non-absorptive materials and complex production processes facilitated a form of inalienable possession, which passed between owners as gifts or inheritance, gathering stories and prestige, but without ever fully adhering to one individual. This is in contrast to other apparently covetable items, such necklaces, which were left in ransacked graves. Swords, which possessed some form of personhood of their own, are the first example of inalienable heirloom. But women's brooches also fall into this category, with their evidence of melting and reworking for new generations or new life stages. Here it is argued that it was the material itself, the remelted and reformed copper alloy, which was seen as the circulated possession, while the form was ephemeral.

## Creating Worlds, Crafting Memories: The Power of Materials in Neolithic Malta and Gozo

**Isabelle Vella Gregory** (Christ's College, University of Cambridge, Cambridge)

The Neolithic Temple Culture of the Maltese Islands is known for its stone temples and figurative repertoire. The latter are acknowledged as agents in a technology of enchantment, but the use of clay as an object to manipulate the senses for social ends is less well-known. The Neolithic pottery repertoire has been traditionally seen in terms of typology and form, but the material itself is part of a complex system of technology that is firmly embedded in the social fabric of society. A study of curated material reveals complex technological processes and a decorative system that need to be re-evaluated. The focus on superficial aspects of form and motifs has traditionally resulted in the pottery (and by extension society) being compared with nearby Sicily. While some typological parallels hold true, pottery decor is part of socially embedded technological choices. A more meaningful identification of socio-technological patterning in the pottery assemblages sheds light on the social dynamics of Neolithic Malta and Gozo, particularly the community of practice and its role in constructing and maintaining identities. Such techniques were an important element of the creation of memory and performance which is vividly manifested in the material culture of the Maltese Islands.

## Flint Acts: Material Use and Bronze Age Practice at the Dampney Neolithic Long Barrow, Dorset

**Sheila Kohring** (University of Cambridge, Cambridge), **Kate Boulden** (University of Cambridge, Cambridge)

The site of Damerham, Dorset is marked by a series of Neolithic and Early Bronze Age monuments ranging from long mounds, anomalies, enclosures and round barrows. During excavations in 2011-2012 part of the early Neolithic barrow's ditches were excavated at the terminus end. In the Bronze Age fill of these ditches, a substantial amount of weathered and patinated flaked flints were recovered. These flints included large numbers of flakes, a number of scrapers and utilised flakes and, interestingly, a higher than expected number of what could vaguely be called 'cores'. These cores, however, tended to have very few flake removal, but more than may be expected for simple testing of material. Moreover, other material evidence was noticeably sparse in comparison to the flint material. This paper explores the role of flint in landscape production, social commemoration and embodied practice. We explore how the Neolithic activity of digging the ditches created an engagement with flints from the chalk environment and how, even after the long barrow, was out of use, the local community continued its engagement with the mound in its landscape through the medium of flint and flintknapping.

### **Instigating Technological Knowledge through Animism and the Life Cycle**

**Kathryn Weedman Arthur** (University of South Florida Saint Petersburg, St Petersburg, Florida)

This paper focuses on the relationship between material culture and living peoples as a model for archaeological interpretations of material agency. The Borada-Gamo of southern Ethiopia say that their animistic worldview enlightens their knowledge of technology. Material culture as spiritually animated has the potential to earn status and worth through gestation in rites of passage. Ironworks, ceramics, stone tools, houses, and food transform through four ritual stages that include birth, maturation in seclusion, adulthood in private households, and elderhood in public marketplaces. These life cycle stages serve as a mnemonic structure for organizing complex farmer and artisan technical knowledge surrounding the production of resources critical for human welfare. Importantly, the life cycle structure births a dialogue between people and materials, such that each instigates metamorphism in the other.

### **Iron Technology, Clay, and Ritual Practice: An Interactional Domain in African Technology**

**Peter Schmidt** (University of Florida, Gainesville)

The materiality of iron production in Africa has gained traction over the last two decades, with studies examining the social dimensions of materials and how material responses inform ritual and social interaction. Key tropes--the furnace as fecund female and the bellows and tuyeres (blow pipes) as male genitalia--inform the social construction of the technology. West of Lake Victoria during the early first millennium CE iron smelters came to understand, through experimental processes read in the archaeological record, that clay pipes inserted inside the furnace led to a much more efficient reduction process. The sourcing of clays suitable to high temperature smelting was critical. If clays were not sufficiently refractory, then smelting would fail. Access to superior clays during this experimental period ensured economic success over other groups and eventually led to incremental growth of political control. Clay resources became associated with cultural beliefs and practices that attributed successful tuyere performance with male virility and failure with a flaccid phallus. Ethnographic study of medicinal practices among the Barongo of Tanzania includes knowledge about the Viagra of iron smelting that arose to cure failing clay pipes, one of a plethora of ritual responses that address technological and social issues.

### **Plenty to Go around: Impact of the Worcester Royal Porcelain Factory on Local China Values in Worcestershire, UK during the 18th, 19th and 20th centuries**

**Helen Loney** (University of Worcester, Worcester)

Since the 18<sup>th</sup> century in Britain, high value has been assigned to industrially manufactured, and highly decorated porcelain and bone china products. However, little work has been conducted on the archaeology of industrial period porcelain production, consumption and discard, particularly in rural contexts. The aim of this paper is to investigate what archaeologists can learn about the sliding scales of value high prestige materials such as porcelain achieve, when in proximity to the points of production. This is a preliminary consideration of results and interpretation of the Worcester Pottery Project. The area in and around Worcester is historically known for the Royal Worcester Porcelain factory, one of Britain's oldest. The project consists of field walking and surface collection of all periods of pottery, but focussing on areas of high density porcelain dumping, including seconds, wasters, kiln furniture and other by-products of industrial porcelain production. This paper sets out to investigate whether close proximity to the Royal Worcester Porcelain factory, with its large employee base, has resulted in a greater than average uptake, consumption and discard of quality products, and whether this context may have had the effect of lessening the value of these pieces in the eyes of local consumers.

## **POSTER**

### **The Production of Glazed Ceramics in Medieval Bolgar**

**Rezida Khamchenkova** (Institute of History of Tatarstan Academy of Science, Kazan), **Valiev Rinat** (Federal University, Kazan), **Airat Sitdikov** (Federal University, Kazan)

The production of glazed ceramics is one of stages in pottery evolution and considered as an achievement in this type of craft. Bulgars produced glazed ceramics from the second half of the 10<sup>th</sup> century in Bilyar (the capital of the Volga, Bulgaria) until the 13<sup>th</sup> century. Following the Mongolian invasion, Bolgar became the capital of the Bulgar part of the Golden Horde, and was a large administrative, political trading and craft center in Eastern Europe. Non-glazed pottery production was especially developed. Quantities of excavated Bolgar ceramics are found across a large territory beyond the immediate area of Volga. This poster details the latest research and shows that glazed ceramics continued to be produced well into the 14<sup>th</sup> century. Four sepaya (ceramic tripods for the firing of glazed pottery) are housed in the repository of the Bolgar State memorial museum. The chemical composition of flow glazes that were found on tripods was investigated and the results are presented here. The analysis showed that the Bulgarian glaze is identical to glazes found on pottery in the Crimea, one of the largest centers of ceramic production in the 13<sup>th</sup>-14<sup>th</sup> centuries. For reasons that remain unclear, the production of glazed ceramics did not develop further in Bolgar.

## **THEME 4**

**“Environment and Subsistence: Geosphere,  
Ecosphere and Human Interaction”**





## THEME 4: ENVIRONMENT AND SUBSISTENCE: GEOSPHERE, ECOSPHERE AND HUMAN INTERACTION

With the growing concern about the consequences of environmental changes on human life, the study of past and present environments and their impact on culture have gained pace. In order to develop models for research, defining the interface between natural and cultural environments in the past has become a challenge. This is especially evident when looking at the changes in adaptive strategies in subsistence patterns.

In earlier years, the primary focus was on developing global models targeting the various possibilities and limitations of different habitats. Revolutionary developments in the natural sciences, while broadening the spectrum in looking at past environments, have also made it possible to obtain data much more precisely than the early years of research. Progress in geochronology, geochemistry and isotope studies, as well as growing evidence from paleoclimatology, tectonics, geomorphology, and sourcing of raw materials have provided new means to define the interface between the antropo, geo and bio environments. It has also become evident that conditions during the past were as multi-various as at the present and that there is a greater need for detailed regional studies. These and other achievements in understanding the past have provided new possibilities in environmental archaeology. The theme is intended to cover a wide spectrum of topics concerning geoarchaeology, bioarchaeology, environmental archaeology, geochronology, settlement and landscape archaeology. It brings together not only case studies, but also methodological approaches, including extensive use of GIS, data mining and numerical modelling techniques.



### T04S001 - THE EXPLOITATION OF WILD PLANT RESOURCES: METHODOLOGICAL, ARCHAEOBOTANICAL AND ETHNOBOTANICAL APPROACHES TO THE IDENTIFICATION OF THEIR TYPE OF MANAGEMENT AND ITS SOCIAL IMPLICATIONS

**Organizers:** Ferran Antolín (IPNA/IPAS, University of Basel, Basel), Marian Berihuete Azorín (University of Hohenheim, Institute of Botany, Stuttgart), Oriol López Bultó (Universitat Autònoma de Barcelona, Departament de Prehistòria, Barcelona)

The exploitation of wild plant resources is a well-known and common practice throughout human history. The management of these resources and their processing techniques can be carried out in a variety of scales and ways, which has important social and economic implications. Therefore, finding ways of identifying plant exploitation strategies is a major need in archaeobotanical analyses. The most significant approaches to this topic have been made from waterlogged sites, where the preservation of seeds, fruits and wood remains is exceptional. Studies from sites with good conditions of preservation and of all sorts of plant macroremains are welcome to this session, but it is our particular target to discuss approaches to plant resources from sites with waterlogged preservation. In this framework, several approaches might be relevant: from archaeobotany to ethnobotany, including experimental work. Methodological papers dealing with the recovery of wild plant remains or their interpretation are equally of interest for the session. As a final aim, it would be desirable to compare different types of social organizations and environments to try to identify and define some models and the relevant socio-economic and environmental variables affecting them. The eventual publication of the papers is intended.

### ORAL PRESENTATIONS

#### Ethnobotanical Information for Archaeobotanical Interpretation. A Proposal of Systematization

**Marian Berihuete Azorín** (University of Hohenheim, Institute of Botany, Stuttgart)

A variety of plant macroremains are found in archaeological contexts, especially in waterlogged sites, where a larger quantity and type of remains are preserved. These remains can be related to past human activities but it is particularly difficult to interpret the presence of wild species. Besides the problems to assess their anthropogenic origin, it is not always easy to define which plant part was being used or if it was incorporated to the site as a product, a by-product or as waste. Archaeobotanical data is frequently presented as a list of taxa, and interpretations tend to rely on our modern plant knowledge without much further discussion. In order to sustain interpretations, ethnobotanical and ethnographic descriptions become a fundamental source of information on plant use and processing techniques. However, the overwhelming quantity of information and the varied types of sources makes the effective use of it very difficult. A proposal to systematize this corpus of data is presented here, with the goal of improving our argumentations on the meaning of the plant remains that are found in archaeological sites.

#### Food Processing and Consumption in the Jomon

**Takamune Kawashima** (Yamaguchi University, Yamaguchi)

Jomon society is recognized as hunter-gatherers, and it is thought that food exploitation in the Jomon period (14,500-950/400 BC) had a minor influence on social change, compared to the introduction of rice cultivation in the beginning of

the Yayoi period (950/400 BC- AD 250). However, during the Jomon period there were some changes in the exploitation of wild resources, which could be related to social changes. It is known that from the Middle to the Late Jomon the exploitation of wild plants changed dramatically. While in the Middle Jomon chestnuts were used as main staple, horse chestnuts showed a remarkable increase in the Late Jomon. Horse chestnuts were found in waterlogged sites, mostly associated with wooden structures which could have been used for food processing. Japanese folkloric examples of the processing of horse chestnuts show that they could have been used in large amount. Comparing to contemporary folkloric examples, wooden structures found in the Jomon period are larger, which could be due to their use in communal context. In this paper, I will first examine Jomon wooden structures and remains found within them, and then explore the potential social impact of the change in food exploitation.

### **Exploitation and Use of Pistachio (*Pistacia* Spp.) in the Neolithic East Mediterranean and the Near East**

**Caroline Douché** (University of Paris 1 Panthéon-Sorbonne, Paris), **Müge Ergun** (University of Istanbul, Istanbul), **Andréa Parès** (University of Paris 1 Panthéon-Sorbonne, Paris), **Margareta Tengberg** (National Museum of Natural History, Paris)

In early Neolithic villages in the East Mediterranean and the Near East, wild fruits remained an important complement to diets that were from then on mainly based on the products of cultivation and herding. The numerous charred or mineralised remains recovered on archaeological sites reflect the importance of wild trees that may have been protected from wood cutting and perhaps even managed in “wild orchards” as is still the tradition in some areas today. This paper focuses on the exploitation of wild pistachios in Cyprus, Anatolia, the north-central Levant and Iran during the Neolithic. Several species of the genus *Pistacia* (Anacardiaceae) are involved and their identification criteria and distribution patterns will be exposed. Different uses of pistachio (fruits, oil, resin etc.) will then be discussed on the basis of ethnobotanical and archaeological records. We are in particular interested in how the preservation and contexts of archaeological *Pistacia* remains may inform us on past uses.

### **Terminal Mesolithic Hazel (*Corylus avellana* L.) Coppice for Rod Production at the South-Western Baltic Sea Coast**

**Stefanie Klooß** (Institute of Pre- and Protohistoric Archaeology of University Kiel, Kiel)

Prehistoric evidence for coppicing is under discussion for decades. But this type of management for exploitation of wild resources is hard to prove. At the south-western Baltic Sea coast hazel rods were used extensively during the terminal Mesolithic and early Neolithic for building large wattle work fishing fences. In the frame of the research project SINCOS, underwater excavations between 1999 and 2008 on several Ertebølle and Early Funnel Beaker (5000-3800 cal BC) submerged sites revealed remains of destroyed fishing fences. Investigation of hundreds of wooden tools as well as thousands of broken rods has demonstrated the dominance of hazel (*Corylus avellana* L.) in the material. Based on shape, size, age and annual ring widths of the hazel poles, coppicing of hazel bushes is postulated for Terminal Mesolithic and thereafter. Moreover regular cutting of dogwood (*Cornus sanguinea* L.) and guelder rose (*Viburnum opulus* L.) has to be assumed, because straight rods of these plants were split for building fish trap baskets. Exploitation of fish with stationary structures as well as woodland management or coppice would have required sedentism in a restricted habitation area. Furthermore regular cutting can be considered as one first step towards the adoption of a productive mode of economy.

### **Forest Exploitation at the Neolithic Waterlogged Site of La Draga (Banyoles, Spain)**

**Oriol López Bultó** (Universitat Autònoma de Barcelona, Departament de Prehistòria, Barcelona)

Research on the obtaining strategies of plant resources in prehistoric societies has been mainly focused on food production, forgetting other raw materials and productive processes equally basic to guarantee human subsistence. All along human history, forests have provided past societies ligneous raw materials that could be used for multiple basic purposes, essential for their existence and reproduction. When the past communities adopted food production and/or sedentary habits, forest resources gain relevance; this is the moment when these societies require larger amount of wood for construction or to produce artefacts. One of the best sites to conduct research on wood obtaining strategies in South-West Europe is the early Neolithic lakeshore settlement of La Draga. This is the best preserved waterlogged site in the Iberian Peninsula, dated between 5300 and 4900 cal BC. The exceptional preservation conditions of the site allow the study of every kind of wood resource obtained from the forest, from tools and architectural elements, to little twigs with undetermined functions. Since 2010 a systematic sampling of wood remains has been undertaken in order to understand how all these woody resources were obtained, transformed and used.

### Sampling for Large-seeded Wild Fruits. The Case of a Late Neolithic Occupation Layer at the Lakeshore Site of Zürich-Opéra (Central Switzerland)

**Ferran Antolín** (IPNA/IPAS, University of Basel, Basel), **Christoph Brombacher** (IPNA/IPAS, University of Basel, Basel), **Marlu Kühn** (IPNA/IPAS, University of Basel, Basel), **Bigna Steiner** (IPNA/IPAS, University of Basel, Basel), **Niels Bleicher** (City of Zürich, Office for Urbanism, Competence Centre for Underwater Archaeology and Laboratory for Dendrochronology, Zürich), **Stefanie Jacomet** (IPNA/IPAS, University of Basel, Basel)

Excavations conducted in the car park of the Opera House of Zürich during 2010 uncovered several settlement phases of a large multilayered Neolithic lake-dwelling site. This presentation is focused on Layer 13, dendrodated to the years around 3230 BC (early Horgen Culture). The cultural layer expands over more than 3000 m<sup>2</sup>. A new systematic sampling strategy based on bulk samples (of c. 10 litres of volume) was applied on the whole excavated surface. Over 1100 litres of sediment were sieved with the wash-over technique and fully-quantitative analyses were done for the large-seeded taxa (>2 mm). The premise of this study is that the quantified results obtained through this analysis provide a reliable overview of the economic importance of these plant resources at the site. The results obtained show that the role of large-seeded wild plants at the settlement was of major significance and that their role in the economy might have been underestimated in previous approaches. An intensive strategy of large-seeded fruit gathering is observed, with high concentrations of single taxa, which could respond to their gathering and processing in bulk. Their distribution within the site shows that it is likely that each household organized the regular gathering of wild plants.

### The Nut Age? Segregating Agricultural Dependence from True Agriculture from Evidence in Europe, Asia and the Near East

**Charlene Murphy** (UCL Institute of Archaeology, London), **Dorian Q. Fuller** (UCL Institute of Archaeology, London), **Chris Stevens** (UCL Institute of Archaeology, London), **Leilani Lucas** (UCL Institute of Archaeology, London)

Archaeobotanical research has largely focused on the origins and spread of agriculture, focusing on cereals, legumes, and the weeds associated with cultivation. Little attention has been given to the role of wild plant food resources during the Neolithic. To remedy this bias this paper will examine the archaeobotanical evidence of wild-plant foods in the archaeobotanical record (i.e. nuts, nutlets, wild herbaceous seeds, and wild fruits) from pre-agricultural assemblages from early and later Neolithic sites from the Near East, Asia and Europe. In the Near East, alongside wheat and barley, equal abundances of nuts (*Pistacia*, *Amygdalus*) and nutlets (Polygonaceae, Cyperaceae) are present which suggests that these resources were important to human diet as were the early crops. However, by the later Neolithic/Chalcolithic period this was no longer the case. Across Europe evidence of nuts and wild fruits as an important food resource appears to diminish in importance in the subsequent Metal Ages. These preliminary results suggest that we are dealing with a unique Neolithic transitional economy. This paper will discuss the need to consider segregating true agriculture and agricultural dependence, as something of the late- or post-Neolithic from early cultivation and domestication processes that took place during the “Nut Age”.

### The Consumption of Wild Fruits in the East of the Iberian Peninsula during Bronze and Iron Age

**Natàlia Alonso** (Universitat de Lleida, Lleida), **Daniel López** (CEC, Barcelona), **Guillem Pérez** (CSIC, Madrid), **Núria Rovira** (Université de Montpellier, Montpellier)

In spite of the small amount of remains, the presence of wild fruits in the protohistoric sites of the East of the Iberian Peninsula is constant. The archaeobotanical data from Bronze Age and Iron Age provide a certain variety of wild fruits exploited. The finding of the following taxa is quite frequent: *Quercus* sp., *Vitis vinifera*, *Ficus carica*, *Pistacia lentiscus*, *Prunus mahaleb*, *Arbutus unedo*, *Juniperus oxycedrus*, *Sambucus nigra*, *Rubus fruticosus/idaeus*, *Olea europaea* var. *sylvestris* or *Prunus spinosa*. Unfortunately most of the known archaeobotanical assemblages consist of charred remains, which make their interpretation more complex. Nevertheless, two Iron Age settlements have recently yielded waterlogged material from wells and cisterns: the Fortress of Els Vilars d'Arbeca (Lleida, Catalonia) and Tossal de les Basses (Alacant, Valencian Country).

### Waterlogged Plant Remains from the Roman Healing Spa of Aqua Flaviae (Chaves, Portugal)

**Filipe Costa Vaz** (Research Center in Biodiversity and Genetic Resources, Porto), **María Martín-Seijo** (CIBIO, Universidade do Porto, Porto), **Sérgio Carneiro** (Faculdade de Ciências, Research Center in Biodiversity and Genetic Resources, Porto), **João Pedro Tereso** (CIBIO, Câmara Municipal de Chaves, Chaves)

More than 3500 individual pieces of waterlogged archaeobotanical remains were found in the excavation of the Roman healing spa of Aquae Flaviae (Chaves, Portugal) carried out between 2006 and 2013. A selection of 631 elements, recovered in stratigraphic units sealed by the roof destruction in late 4th to 5th centuries AD, were analysed. The material studied included several types of archaeobotanical remains: timber used for construction (planks, beams, stakes, boards), wooden daily objects (combs, bowls and containers, corks, handles, spindle whorls, etc.) and carpological macroremains (seeds, fruits, pine scales and cones, etc.). In order to carry out this investigation each individual wooden remain was recorded in a database developed with this aim, describing technological, taphonomical, taxonomical and dendrological data. Such array of information allowed us to discuss relevant ethnobotanical issues regarding wood selection (species and wood

characteristics) according to their functional purpose (timber, objects, etc.). Furthermore, wood without any evidence of craft and carpological remains were also considered in regard of their taxonomical characteristics. They provide relevant insights about the surrounding vegetation and fruit consumption.

### **Roman Wells: An Archaeobotanical and Dendrochronological Approach**

**Oriol López Bultó** (Universitat Autònoma de Barcelona, Departament de Prehistòria, Barcelona), **Raquel Piqué** (Universitat Autònoma de Barcelona, Barcelona), **Alessandro Ravotto** (Universitat Autònoma de Barcelona, Museo Civico di Garesio, Barcelona and Garesio)

Preservation of wood and other archaeobotanical remains is quite common in Roman wells from urban contexts. Wood recovered inside wells can offer extraordinary information on forest exploitation and management, woodworking and construction technology. Moreover, the dendrochronological analysis of wood, which has started to be implemented only in recent times, could lead, on the long term, to a framework of data helpful for the dating of wooden archaeological structures and paleoclimatic reconstruction. The aim of this paper is to discuss and present the results and methodological approach of the analysis of recovered wood in three Roman wells in the North-east of Iberian Peninsula. Paleoecological information, different uses of raw material, technological and dendrochronological data obtained are presented and contextualized in relation to the period and the region.

### **Exploitation of Wild Plant Resources from Ethnobotanical and Archaeobotanical Perspectives: Althiburos (11th century BC- 12th century AD) and Its Surrounding Area**

**Francisco José Cantero Rodríguez** (University of Barcelona, Barcelona)

The people of the Ouarten tribe (El Kef, Tunisia) still practice agriculture and livestock husbandry with ancestral techniques. Some men and women of this tribe were interviewed regarding the use of wild plants. These tasks have been studied ethnoarchaeologically within the framework of the research project “Ouarten: ethnoarchéologie d’une tribu berbère en Tunisie (El Kef)”, which is linked to the INP/UB archaeological Project on the ancient town of Althiburos and its territory. Having investigated their methods of building homes or barns, tool-making techniques, cooking or livestock foddering practices, treatments of diseases and the use of certain plants as tools or raw materials for various purposes, we can reach a complete approach to the interaction of these people with wild plants. The seasonality of these practices has also been investigated along with the methods of preparing plants for consumption, the transmission of such knowledge within the family and its current validity. This research was carried out in parallel to the systematic study of the archaeobotanical remains of the archaeological site of Althiburos. This study presents the interrelated discussion of these investigations in order to establish certain patterns in the use of certain taxa documented both in archaeological and ethnobotanical contexts.

### **From Top to Bottom: Wild Plants in Medieval Cesspits**

**Don P. O’Meara** (Durham University, Durham), **Mike J. Church** (Durham University, Durham), **Peter Rowley-Conwy** (Durham University, Durham)

This paper will present the results of the study of the available cesspit deposits from the medieval period (AD/CE 850-1600) in Northern England. This consists of 150 separate samples, which together contain over 400 species of plants. The majority of these are wild plants and this paper will address some of the issues for studying wild plant resources from medieval cesspit deposits. This includes the continuing popularity of native wild fruits after the arrival of exotic imports, the role of wild plants as food contaminants associated with cultivation, and the importance of identifying diachronic changes in the archaeobotanical record. As a particular case study the recovery and identification of mosses will be discussed. Theories for their systematic collection will be presented, specifically the collection of mosses as anal wipes (i.e. medieval toilet paper). The possible evidence for changes in personal sanitary practices after the Norman Invasion (AD/CE 1066) will be presented. It is argued that fundamental ways in which personal hygiene was undertaken is manifest in the archaeobotanical record and highlights the importance of studying wild plant species from this period.

## **POSTERS**

### **Branch Age and Diameter: Useful Criteria to Recognise Woodland Management?**

**Caroline Vermeeren** (BIAX Consult, Leiden), **Kirstin Hänninen** (BIAX Consult, Leiden), **Welmoed A. Out** (Institute of Pre- and Protohistoric Archaeology of University Kiel, Kiel)

Woodland management such as pollarding and coppicing is regularly discussed in Archaeology, and is often argued to represent evidence of a changing relationship between people, plants and landscape from the late Mesolithic onwards. When prehistoric archaeological sites yield non-carbonised wood like wattle work or fish traps, one of the ways to test for management is analysis of branch diameter and age. However, the interpretation of such data is often based on assumptions. To test whether it is indeed possible to identify past woodland management on the basis of age/diameter analysis in

archaeological wood assemblages, models have been developed that predict the expected age and diameter distribution of branches from unmanaged and managed trees. The models were tested by studying modern-day trees and applied afterwards to prehistoric case studies. This study provides some clear outcomes on the possibilities and restrictions of the method as well as suggestions for future research.

### **Bog Bilberry (*Vaccinium Uliginosum*) and Other Plants from Early Medieval Archeological Site in Radom, Central Poland**

**Grzegorz Skrzyński** (Polish Academy of Sciences, Warsaw), **Sylvia Wajda** (The Museum of the Earth, Institute of Archaeology Warsaw University, Warsaw)

The material for archaeobotanical research was collected during archaeological excavations carried out on the early medieval settlement complex of Radom (Poland). Samples were taken from different parts of the cultural layer of an early medieval building. The location of the building in an area of high ground water level gave the possibility for the humification of organic matter accumulated inside. Humified and charred plant diaspores have been taxonomically identified. Most of the recognized species belonged to anthropogenic plant communities. Among the discovered plant macroremains there were also cereals and edible taxa sourced from the wild. One of them is particularly interesting for at least three reasons. Firstly, bog bilberry rests which were found in Radom are the oldest diaspores of *Vaccinium uliginosum* from an archaeological site in Poland. Secondly, according to geobotanical data, the nearest place where a bog bilberry population could exist is located ca 40 km from the excavation place, which is a considerable distance for early medieval people. The third reason lies in the intoxicating properties of its berries – they could be used to induce their users into a state of drunkenness. So, there is a question concerning its place in medieval diet: was it only an “ordinary” fruit collected as food or a narcotic substance?

### **Issues and Possibilities in Hunter-Gatherer Archaeobotany. An Example from the Schwarzenberg Lake, Czech Republic**

**Michaela Divišová** (University of South Bohemia in České Budějovice, České Budějovice), **Tereza Šálková** (University of South Bohemia in České Budějovice, České Budějovice), **Petr Šída** (University of Hradec Králové, Hradec Králové)

The contribution presents the results of the study of plant macroremains recovered from the archaeological features at the site of Schwarzenberg Lake. The remnants of a former lake, where a key Mesolithic archaeological site is found, are located in the Třeboň Basin, South Bohemia, Czech Republic. Studied archaeological features lie on a sandy peninsula adjacent to the original shore of the lake. In this work, a pilot study concerning Mesolithic features using plant macroremains analysis as well as the role of ethnobotanical and experimental approach to deal with issues and possibilities in hunter-gatherer archaeobotany is considered and presented.

### **Wood Objects of Zamostje 2 Site: Species and Tool Production**

**Olga Lozovskaya** (Institute for the History of Material Culture, St. Petersburg)

Excavations of the peat-bog settlement Zamostje 2 (Volga-Oka region, Central Russia) gave different evidences of the use of wood and plant materials for construction, toolkit production, hafting and consumption. The cultural layers of the site date to the Late Mesolithic – Middle Neolithic period from the beginning of the 7th millennium to the second half of the 5th millennium cal BC. According to the pollen analysis, the vegetation of this period is characterized by birch and pine forests, in the later phase by broadleaved woodland. However the anatomical study of waterlogged woods show that broad-leaved trees (hornbeam, poplar, bird cherry) were widespread from 7400 till 5500 uncal BP. Preserved in a waterlogged environment, remains of wood, bark, seeds, nuts, fungi and plants allowed us to reconstruct specific ways of use of wood raw materials for building constructions and tool making, areas of application of bark and some non-woody plants. Some seeds and nuts remains found in the “archaeological context” (crust on pottery pieces, coprolites) indicate their use as food.



## **T04S002 - IRON AGE LANDSCAPES IN A COMPARATIVE PERSPECTIVE**

**Organizers:** **Axel G. Posluschny** (Roman-Germanic Commission of the German Archaeological Institute, Frankfurt), **Alžběta Danielisová** (Institute of Archaeology of the Czech Academy of Sciences, Prague), **César Parcero-Oubiña** (Instituto de Ciencias del Patrimonio, Santiago de Compostela)

Europe's landscapes differ in the past as they do nowadays. On the one hand, the landscape as a framework had a direct influence on how (pre-Roman) Iron Age societies in different parts of Europe dealt with their surrounding environments. On the other hand, the different social, political and cultural trajectories across Europe built up different productive, social and symbolic landscapes in the Iron Age. In this session we want to compare recent approaches to different landscapes in different areas of Europe, different ways of dealing with these landscapes for past societies and different (or similar?) interpretations that we as archaeologists come up with, based on different scientific approaches, cultural imprint, different experience and different education in different countries of Europe. What are nowadays the main research problems?



How are Iron Age landscapes being approached in the early 21st century? What are the future directions to be expected or wished? Contributions are welcome that focus on case studies from all over Europe, that compare data and results from Iron Age landscapes with those from other periods, that compare different regions of Europe in the Iron Age or that focus on different approaches from scholars in Europe.

## ORAL PRESENTATIONS

### **The Iron Age Hillfort and Surrounding Area by Pécs–Jakabhegy (South–Hungary)**

**Csilla Gáti** (Janus Pannonius Museum, Pecs)

The enormous Iron Age hillfort by Pécs (ca.50 ha) is known in the archaeological literature since the 19. century. Outside of the ramparts more hundreds of small burial tumuli can be found. According to the find in this burials the main using period of the hillfort was most probably the early Iron Age (8–6. century BC), although there are traces of habitats in the Celtic and also in Roman periods. Because of the dense vegetation the precise geodetic survey of the ramparts, the tumuli and the inner part could not be done before. In 2012 within the frames of the Arcland project we had the opportunity to do LiDAR survey on the hillfort and surrounding areas. As a results we could identify new parts of the ramparts and could have had a detailed map of the tumuli cemetery. The presentation will give a brief introduction into our new results.

### **Transhumance in Iron Age Crimea**

**Jens Andresen** (Aarhus University, Aarhus)

Until very recently, Iron Age settlements in Western Crimea were unknown. Through iterative refinements of prospection methods, hundreds are now discovered. In under 10 years NW Crimea has developed from a blank spot to one of the densest dotted areas in the north Pontic. Time is now ripe to discuss the nature of these settlements: do the structural remains represent nomads, permanent settlers, or seasonal transhumance? The paper presents the archaeological evidence, the landscape setting and the historical context of this newly discovered Iron Age landscape in the fringes of Europe.

### **Fielding the Evidence: A GIS-based Approach to the Later Prehistoric Coaxial Landscapes of the Yorkshire Dales**

**Hannah Brown** (University of Bradford, Bradford)

The Yorkshire Dales National Park, located in northern England, contains some of the best preserved coaxial field systems in north-western Europe. Comparable with the Dartmoor reaves, the latter are considerably better known, while the prehistoric landscapes of the Dales have remained significantly under studied. This paper presents research undertaken as one of two linked PhD projects that attempt to redress this balance, through the use of GIS- and fieldwork-based approaches respectively. Although a wealth of archaeology undoubtedly remains to be found by modern (non-)invasive field methods, a diverse though disparate corpus of valuable evidence already exists in the form of aerial photographs, Lidar, cartographic and documentary records, and local authority databases in addition to the modern landscape. This has been collated in a GIS in order to create a means by which to store, retrieve, visualise and interrogate the integrated datasets, in order to shed light on the evolution of the ancient landscape through space and time. Conjectures and inferences are being tested within the GIS with emphasis on the social, political, environmental and symbolic implications. In addition to placing the coaxial systems against the background of their distinctive geological background, the GIS approach facilitates intra- and inter-regional comparisons.

### **Uzunoğlan Tepesi: Neo-Assyrian Rock Relief and Roman Temple**

**Susanne Rutishauser** (University of Bern, Bern), **Ralph Rosenbauer** (University of Bern, Bern)

Cilicia is defined by sharp contrasts like almost no other landscape in Asia Minor: geographically speaking in that a large fertile plain is surrounded by sharply rising mountain ranges as well as historic-topographically by the ambivalence of the seclusion contrasted by the simultaneous location in a geostrategic key position. Uzunoğlan Tepesi is situated at the transition between the lowland of Plain Cilicia and the highland of the Taurus Mountains. Monuments from different epochs and with a different function are located on the top of this hill: A Neo-Assyrian rock relief commemorates a military victory of Shalmaneser III over the land of Que. Only a few meter apart there is a Roman temple located. An Armenian Donjon belongs to the youngest monument in this small area. To reconstruct the settlement pattern and the road network of the region and to define the reasons for the erection of these monuments at the top of Uzunoğlan Tepesi a combined methodological approach is applied: Textual evidence is consolidated with the results of extensive archaeological surveying and space-born remote sensing. In order to interpret the data more accurately from different sources the data are combined in a Geographical Information System (GIS) for analysis.

## **The Bronze and Iron Age Woodland Landscape of Central Anatolia**

**Nathan Wright** (University of Queensland, Brisbane)

Very little is known of the extant woodland of the Bronze and Iron Age in Central Anatolia other than that revealed by regional pollen data and modern analogues. Today the region is a treeless steppe, a product of millennia of agricultural and pastoral use. Yet regional pollen data indicate a climax woodland cover consisting of open oak woodlands existed in the Bronze and Iron Age periods. This study utilises wood charcoal data of the site of Kaman-Kalehöyük in the heart of Central Anatolia to assess whether the local woodland surrounding the site matches that indicated by the pollen data during the Bronze and Iron Ages and what, if any, changes in woodland composition occurred. The results of wood charcoal identification and statistical analyses of over 23,000 fragments from 122 contexts are reported in this paper. The results indicate both dramatic and more subtle and nuanced changes in the local woodland vegetation coincide with changes in occupation at the site. These changes in vegetation composition are chronologically tied to changes in land use and associated social changes including that of expansion in the use of land required for agricultural and pastoralist purposes.

## **Palaeoecological, Archaeological, and Etymological Evidence of the History of Settlement on the Coastal Mainland in Southern Finland during the Iron Age**

**Teija Alenius** (University of Helsinki, Helsinki), **Georg Haggrén** (University of Helsinki, Helsinki)

The Iron Age has been a poorly known period on the coastal mainland and in the archipelago of southern Finland. According to the traditional hypothesis based on earlier archaeological and historical records, there were a few settlement centres on the southern coast of Finland in the Iron Age, but settlement disappeared before the end of the Viking Age (in Finland: AD 800 – 1050), and this vast area was left unsettled and used only for its resources. According to the traditional view, it was not until the late 12th and 13th centuries, when Swedes colonised new areas in the north-eastern side of the Baltic Sea. In order to investigate this hypothesis, pollen data, collected from altogether 36 peat and sediment cores, are presented and compared with archaeological and etymological material from the area. The results have first challenged and then changed the traditional view.

## **Settlements in Contexts: Late Iron Age Landscape Approaches. An Overview Regarding Southern Romania**

**Monica Nicolaescu** (“Vasile Parvan” Institute of Archaeology, Romanian Academy, Bucharest)

This presentation intends to discuss several Late Iron Age settlements located in different parts of South-Eastern Romania, the Carpathians Curvature area and the Wallachian plain area. Although the “cultural” and chronological frames are very similar, significant differences can be noticed among these sites and certain particularities can be observed in relation to their landscape. The natural environment and surroundings influenced not only the decision of a certain community to live in a certain place, but also the development of a settlement. How different are the landscapes from Southern Carpathian area and to what extent did these differences influence the sites’ expansion? The presentation will also focus on how different Iron Age landscapes influenced human activities and on how are these themes being approached in the Romanian archaeology in the early 21st century.

## **Gaulish and Dacian Settlements Organised the Landscape in the Same Way at Both Extremities of Europe – An Archeogeographical Approach**

**Philippe Fajon** (Ministère de la Culture et de la Communication, UMR 7041 ArScAn Archéologies Environnementales, Rouen), **Bogdan Sandric** (Institutul National al Patrimoniului, Ministerul Culturii, Bucharest)

During the late Iron Age, parcelling the landscape is a fact commonly admitted in a lot of countries. At both extremities of the next Roman empire, the same phenomena is viewable. Oppida organised the territory, not only as points surrounded by settlements but also as points of connection from which the lineaments drawn the landscape organisation. With the two examples of Upper-Normandy (France) with the rules of gaulish settlements of LaTène D, and Olt county (Romania) with Dacian fortresses, and using the technics of the archaeogeography, we shall try to show how the sites organised the road net and the fields limits. We’ll demonstrate that the way of human organisation of the landscape is ready to grow up in a new dimension. Time is ready for the roman civilization to come and impose itself by its trade and territory structuration, as an adaptation of that was before. And this structuration, in France as in Romania, remained the driving force behind the development of the space until the middle of twentieth century.

## **Iron Age Landscapes of Western Norway - The Potential in Combining Archaeology, Pollen Analysis, Numerical Methods and Modelling Approaches for Identification of Landscape Patterns on Different Spatial Scales**

**Kari Loe Hjelle** (University of Bergen, Bergen)

Western Norway is characterised by topographic and climatic gradients from west to east, resulting in different vegetation types, settlement patterns and utilization of the landscape through time. Knowledge on landscape development in agricul-

tural areas of the fjord districts has, until recently, been limited. Archaeological excavations incorporating studies of pollen and macro remains the last ca. 20 years have revealed new insights into settlement, agriculture and cultural landscape development in these areas. Results from different regions will be presented, combining data from lake deposits, bogs and archaeological sites. The presentation focuses on the different information given by pollen analysis on different spatial scales; land-use practices are identified using quantitative reconstructions and modern analogues, past landscapes are simulated and tested against pollen assemblages using modelling approaches on a local scale, whereas openness of the landscape is reconstructed on a regional scale. Pollen analysis reveals the vegetation development from the first forest clearance in the Neolithic towards the open agricultural landscape of the Iron Age. Farming communities with cereal cultivation, mown meadows and pastures dominated the landscape along the fjords in the Iron Age. Heathlands by the coast and pastures/meadows in mountains were both important resources in an outfield - infield management system.

### **Pre-Roman and Roman Period Landscape in Kraków Region (Southern Poland)**

**Halina Dobrzańska** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw), **Tomasz Kallicki** (Institute of Geography, The Jan Kochanowski University in Kielce, Kielce)

The authors present results of the research on the interdisciplinary project focuses on interrelationships between man and his natural environment in the Pre-Roman and Roman periods (3rd century BC-4th century AD) in the Vistula valley, about 30 km eastward of Kraków. This area has a specific place on archaeological map of Poland, due to intensive and diverse settlement, especially from the periods of our interest. In recent years, as a result of wide-scale excavations related to freeway construction, a number of new finds has been discovered on the loess terrace, where prehistoric settlement was concentrated, but also on the floodplain of the river, so-far very poorly recognized by archaeologists. Today, both environments look very different than in the Pre-Roman and Roman periods. In both, the settlement was based on agriculture, complemented in various degrees by non-agrarian activities. In the project apart from archaeological research there have been utilized results of geophysical, dendrochronological, radiocarbon, palynological, archaeobotanical, palaeozoological, ceramological analyses, as well as radiocarbon testing. An attempt has been made to answer the question how people who lived there in the periods of our interest constructed and used the environment around them.

### **Social Reproduction and the Midden Sites of the Vale of Pewsey, England**

**Andrew Valdez-Tullett** (Independent Researcher, Southampton)

Study of the Earliest Iron Age period in Britain (800-600 BC) falls prior to the major phase of hillfort construction and hence chronologically earlier than the major models of social organization for the Iron Age that centre on the roles of hillforts (e.g. Cunliffe 1991, Hill 1995; Sharples 2007). This paper focuses on the evidence for the exploitation of the landscape and environmental resources during the Earliest Iron Age in the county of Wiltshire, England in particular assesses the role of the large midden sites of the Vale of Pewsey which contain huge quantities of animal bone and pottery. It compares this evidence to the wealth of Bronze Age data to suggest that an increasingly transhumant regime during a period of climatic downturn led to animals rather than bronze fulfilling a central role in social reproduction. Ultimately it posits a theory for the initial phase of hillfort construction in the area.

### **Chariots, Iron, Boats and Floods – Iron Age Settlement and Industry in a Changing UK Landscape**

**Peter Halkon** (Hull University, Hull)

Eastern Yorkshire (UK) contains some of the most significant Iron Age archaeology in Europe. Home to the internationally renowned Arras culture with chariot burials comparable to those of France and Belgium, Britain's largest surviving logboat and one of Britain's largest prehistoric iron industries, it forms a perfect case study for this session. Much recent research has been undertaken, particularly by this paper's proposer, to elucidate changing human/landscape interaction throughout the Iron Age and Roman periods. Between 800 and 500 BC, a major tidal surge similar to those experienced in the UK in December 2013, transformed the coastline of the Humber estuary, creating a tidal inlet. Although this event may have caused initial disruption, it opened the region to wider influences across the North Sea and English Channel. This climatic event may also have accelerated the division and control of the landscape represented by the appearance of defended enclosures and an impressive network of linear earthworks, some extending for many kilometres, particularly on the Yorkshire Wolds. A close connection between soil type, drainage and topography and Iron Age settlement-type morphology has also been demonstrated. This region provides a suitable "laboratory" for examining the impact of Rome.

### **Landscape and Social Dynamics in Eastern Iberian Iron Age**

**Ignasi Grau Mira** (University of Alicante, Alicante)

Research on Eastern Iberian Iron Age Landscape has detected the existence of similar dynamics regarding the emergence of hierarchical settlement patterns. A series of fortified medium-sized sites acquired remarkable importance and controlled dependent settlements spread around territorial areas of a regional nature. The emergence of this landscape is related

to social dynamics characterized by the development of clientele society dominated by Iberian aristocracies. I present the case study of the Iberian Iron Age of the Valley of Alcoi in Valencia Region, Eastern Spain, in order to compare data and results with other Iron Age landscapes in the Mediterranean and Western European areas. My study addresses methodological aspects, as the use of GIS and other geospatial technologies, and theoretical issues, as the role of visibility in shaping territories or the fortified landscapes as mechanism for social control.

### **Iron Age Landscapes on the South-Eastern Fringes of the Alps**

**Matija Črešnar** (University of Ljubljana, Ljubljana)

Using landscape as a starting point can open the way for an understanding of social structures and power relations that are not evident using other sources. Large sets of new data, acquired using new approaches, i.e. remote sensing and geophysical methods, GIS etc., brought new understanding the Iron Age landscapes of Slovenia. Iron Age landscapes in the region are structured around hillforts as centres of power and barrows as visible manifestation of ancestral presence. However, recent research brought other types of evidence, such as unfortified lowland settlements as well as other features such as trackways and processual avenues... Iron Age landscapes on the south-eastern fringes of the Alps appear to be complex entities, which played an important role in negotiation of power and identity politics among polities. However, those complex landscapes did not just come into being, but emerged from previous, Bronze Age landscapes through a series of transformations. In tracing those transformations, we can tackle the paths towards complexity in terms of access, mobility, and control.

### **To See or to be Seen. Architectural Monumentality and Landscape in South West Mallorca (Spain)**

**Alejandra Galmés Alba** (Complutense University of Madrid, Madrid)

New perspectives in Western Mediterranean studies seek to integrate the monumentality present in the constructions of the island into a global landscape perspective. This approach has not been done yet in the island of Mallorca, where monumentality has usually been studied in itself, rather than in a global perspective. From a landscape archaeology perspective and with the use of GIS techniques, this paper aims to study monuments from a double perspective; on the one hand, their visibility and visualization, understanding those as a way of social construction of the landscape. On the other hand, focusing on a case study in the South West of Mallorca, we seek to get a closer look into the changing patterns of monumentality which, through different strategies, persist from the Bronze Age to the Second Iron Age, with strong Punic influences from Ebussus. The focus on such a perdurable tendency will allow us to see long term social dynamics and the changes and survivals on the monumental patterns in the architecture, as a way to socially construct and think the landscape.

### **Tracing the Emergence of Cultural Landscapes to Analyse the Process of Iron Age Urbanisation in Auvergne: The Oppidum of Corent (France)**

**Paul M. Ledger** (MSH USR 3550/CNRS/UBP, Clermont-Ferrand), **Yannick Miras** (GEOLAB, UMR 6042/CNRS/UBP, Clermont-Ferrand), **Pierre-Yves Milcent**, **Matthieu Poux**

The Oppidum of Corent presents an ideal location to study the emergence of an Iron Age urban centre in Celtic Gaul. Since 2001 annual excavations have revealed a non-linear process of urbanisation beginning at the end of the Bronze Age and culminated towards the end of the La Tène. Commercial, artisanal and monumental public and religious buildings date to this period and suggest Corent may have functioned as the capital of the Arverni. The presence of Mediterranean material culture indicates the site was at the heart of an exchange network. Despite this wealth of archaeological data little is known of how the site developed in relation to its landscape. Here we present AYPONA, a diachronic interdisciplinary project which aims to analyse the processes of urbanisation through the reconstruction of urban and rural cultural landscapes associated with the site. Existing archaeological data is integrated with LIDAR, GIS, geoarchaeological and novel environmental archaeological data. These findings are used to explore similarities and variabilities of Iron Age urbanisation both in a diachronic perspective at the site, but also through comparison with contemporary European landscapes.

### **The EngLald-Project and the Iron Age Landscape of North Northumberland, England, through Time**

**Letty ten Harkel** (University of Oxford, Oxford)

The English Landscapes and Identities (EngLald) project is an innovative 5-year ERC-funded project that is taking place at the University of Oxford. With over 800,000 records in its database, in part derived from developer-funded archaeological enquiries since the 1990s, it charts change and continuity from the middle Bronze Age to the early medieval period through a nation-wide survey alongside more focused case study areas. One of the first case-study areas to have been addressed is situated in North Northumberland, an area renowned for its survival of Iron Age 'hillforts'. This paper will present methodology and initial conclusions pertaining to this particular Iron Age landscape, focusing on two broad issues: 1) Methodological: how have recent 'big data' projects like the EngLald project affected our approaches to Iron Age landscapes? 2) Interpretative: the EngLald project has a multi-period focus, which creates the possibility to study (for example) Iron Age hillforts not merely as 'sites' – in their own right or in their contemporary landscape setting – but to address processes of hillfort

construction, abandonment and re-occupation/re-use in later periods as socially meaningful phenomena. As such, this paper will analyse these sites in their contemporary setting, as well as address their changing significance through time.

### **The Social Landscapes of Iron Age Britain**

**Nicky Garland** (UCL, London)

Following the influence of post-processualism in Britain, the investigation and interpretation of Iron Age landscapes has developed from environmental and/or economically focused studies to those which have been explored predominately in social terms. These studies examine 'landscapes' not as a scale but as a concept, often using experiential theoretical frameworks. This has led to the realization that landscapes, and their inhabitants, operate on multiple frames of reference and therefore our analyses requires the examination of different levels of society and how they interact with one another. This paper explores the development of the theoretical frameworks of British Iron Age landscapes and uses these methods to examine two case studies within south-east Britain, using the ever growing data collected from developer-funded archaeology. This is accomplished through the analysis of a range of evidence present on multiple scales, (find, site, landscape), allowing the interrogation of identity on multiple levels (individuals, communities, regions). In addition, a cross temporal approach (i.e. investigating conformity and diversity within these social groups over time) will allow the examination of the shifting nature of these landscapes across the Iron Age and into the Early Roman period while exploring the changing nature of identities on individual and communal levels.

### **Regional Aspects of Landscape Utilization and Settlement Organization in Denmark in Early Iron Age and Historic Times. A Comparative Study**

**Mads Runge** (Odense City Museums, Odense)

The background for the structures of the historical agrarian society is used as a methodological approach to the analysis of regional settlement patterns in Early Iron Age Denmark. The formation of the regional structures in historic times is based on natural preconditions, resources of the cultural landscape, settlement organization and possession and structures of estates. While the two first mentioned aspects to a high extend meets the situation of the Early Iron Age, the last two aspects in the Early Iron Age regards the settlements internal organization, dynamics and regional landscape organization. It is obvious that the use of a historical analogy on the structures of the Early Iron Age is possible only with a great deal of precaution. The lecture will show similarities and differences in the landscape utilization and settlement organization in the two periods, and analyze the background for these structures in a number of concrete cases. The cases illustrate resilience and answers to challenges of economy and population in different periods and regions. Finally the possibilities and limitations of the method are evaluated.

## **POSTERS**

### **Unravelling the Later Prehistoric Landscapes of the Yorkshire Dales: A Fieldwork Based Approach**

**Mary K. Saunders** (University of Bradford, Bradford)

Within the bounds of the Yorkshire Dales National Park, Yorkshire and Cumbria, England, some of the most extensive and extant later prehistoric field systems in the UK are evident. Although certain areas like Upper Wharfedale were superficially investigated by antiquarian and pre WWII workers, recent research has been limited and the sheer size of the Yorkshire Dales National Park (1,762 Km<sup>2</sup>) means that there remains much to be discovered. This project is one of two AHRC Collaborative Doctoral Awards based around these landscapes, the first utilising GIS to study the wider Yorkshire Dales later prehistoric landscape, placing it into a European context and the second, looking more closely at the nature and development of the field systems themselves, through the use of a variety of fieldwork and remote-sensing approaches. This poster will outline some of the background to the project before presenting results from the first year of research. In particular it will include data from a fieldwork pilot study and will assess whether particular methodologies and targeted non-intrusive investigation can elucidate the relationship between elements of field systems, their relative dating and their place in a wider cultural and physical prehistoric landscape.

### **On the Trails of the "Invisible People": A Multi-Proxy Palaeolimnological Study Focussed on the Irish Iron Age**

**Seamus McGinley** (National University of Ireland, Galway)

The Iron Age (600BC to AD400) is the most enigmatic, challenging and fascinating period in the history of Ireland due to the paucity of secular settlement evidence. This led Barry Raftery, one of the foremost scholars on the period, to title a chapter of his book *Pagan Celtic Ireland: "The Invisible People"* (Raftery, 1997). This study proposes to use environmental evidence trapped in lake sediments to provide new insights on changing climate, settlement patterns, land use and economy in 'Celtic' Ireland. It will also demonstrate the value of new research techniques to archaeological investigations. Chironomids



(non-biting midge flies) will be the main environmental indicator used in this study as part of a multi-proxy approach that also includes pollen, lake sediment geochemistry (C: N, 15δN, 13δC) and macroscopic charcoal analysis. The project uses the best expertise available in Ireland while collaborating with the leading archaeological research institute. This study will use pioneering but proven techniques to provide an uninterrupted record of environmental change, and thereby enable the reconstruction of societal changes during the Iron Age. By uncovering the environmental trails of the 'Invisible People', it will shed new light on the Celtic society that goes to the heart of Irish identity.

### **Spatial Analysis of Iron Age Settlements in the Basin of the Moskva River**

**Sergey Chaukin** (Institute of Archaeology Russian Academy of Sciences, Moscow)

The research considers the space organization of the D'yakovo culture settlements dated from the 8th century BC to the 7th century AD. The settlements are located in the basin of the Moskva River which is divided into several physiographic provinces. The beginning of D'yakovo culture hill-forts dated to the end of sub-boreal climatic period which is characterized by climate cooling, compared with the previous time, and the change of deciduous forests with fir. This period continues to 500's. BC and covers the first phase of life at the hill-forts. Next climatic period Subatlantic characterized by even more cooling and moist climate. It falls on the top of the second and third stages of life at the hill-forts. Research was conducted using GIS. Created project includes the following: settlements - a point layer, the river - line layer, the surface - in a format GRID. All settlements were divided into three layers corresponding to chronological periodization. Stage 1 - 8th century BC - 6th century BC; stage 2 - 5th century BC - 2nd century BC; stage 3 - 1st century - 7th century AD. The methodological approach of spatial analysis allowed to determine the density of settlements, to determine the optimal size of site catchment area and peculiarities of land use.

### **A Reconstruction of the Early Iron Age Landscapes at Lower Danube Based on Archaeological and Archaeozoological Data**

**Stanc Margareta Simina** (Alexandru Ioan Cuza University of Iași, Iași), **Ailincă Sorin Cristian** (Institute for Eco-Museum Research of Tulcea, Tulcea)

Babadag culture (11th-8th centuries BC) is a known civilization - beginning of Iron Age at the Lower Danube. The main human traces are settlements, identified especially on the high loess terraces on the Dobruja shores of the Danube, its puddles and lakes and also in the Razim-Sinoe lagoon (the ancient Halmyris bay). A similar disposing can be observed on the left side of the Danube, where sites are placed mainly along the main tributaries (Prut, Siret, Buzau). Throughout time this landscape suffered many natural and anthropic alterations; a partial reconstitution was possible as result of archaeological and archaeozoological analyses in the settlements (Enisala, Niculitel, Jijila, Garvan, Babadag). Our approach aims at comparing sites which are located in different landscapes from the perspective of exploiting the animal resources and archaeological evidences. The largest share of identified wild mammals is represented by red deer and wild boar. This two species prefer large and old forests, and their presence is a clue regarding the existence of large forests in the area. Due to intense deforestation and excessive hunting, red deer receded to the Carpathian area, but in Early Iron Age was also present in Dobrudja. Work supported by a grant CNCS-UEFISCDI, PN-II-RU-TE-2011-3-0146.

### **Tlachtga: An Irish Hilltop Enclosure and Ritual Site in Co. Meath**

**Stephen Davis** (University College Dublin, Dublin), **Elizabeth Richley** (University of Southampton, Southampton), **Chris Carey** (University of Brighton, Brighton)

Tlachtga ('Earth Spear') is a large earthen enclosure, located on a low hill in Co. Meath in the east of Ireland. Measuring over 150m in diameter it is of unusual form, with four sets of closely-spaced enclosing ramparts. Fewer than five such sites are recorded in Ireland and they are of exceptional status, usually associated with 'royal' landscapes. Such closely-spaced ramparts are rare in Ireland before the Late Iron Age, and are generally absent or secondary in Irish hillforts which are predominantly Bronze Age in date. Ongoing remote sensing at Tlachtga has revealed at least two additional phases of enclosure: a large partially overbuilt enclosure, also with closely-spaced ramparts, and a smaller southern enclosure, apparently respected by later phases, a pattern seen in other Iron Age sites in Ireland. This poster presents the site in the context of other similar Irish enclosures, discussing the development of closely-spaced fortification in an Irish context. It is hoped the poster will present some preliminary results of excavations, planned for early summer 2014.

### **The Impact of Climatic Fluctuation on Culture in the Finish of Early Iron Age and the Beginning of the Middle Ages in Trans-Urals**

**Natalia Matveeva** (Tyumen State University, Tyumen), **Natalia Ryabogina** (Institute of problems development of the North SB RAS, Tyumen)

In this paper a generalization of natural records and archaeological materials will be presented to illustrate the impact of climatic fluctuation on culture in the finish of early Iron Age and the beginning of the Middle Ages in Trans-Urals. Climatic



trend to cooling and increasing rainfall was in the early Iron Age, it was favourable for living in the forest-steppe and northern steppe. In III-II centuries BC a short-term warming, then cooling and damping of the climate occurred. In early Iron Age the stable system of inhabitation based on the complex economy, in which had lead rather mobile way of life and a lot of cattle. Long term functioning political and military centers, development of trade relations and growing population were identified by archaeological evidence. But in the beginning of the new Millennium a new insignificant warming started and culture transform in nomadic. The economy degradation, impoverishment of life and levelling of social differences was noted at the same time. The reason of that culture-genesis picture was complex and determined by many factors, including influence of Great migration epoch in Trans-Urals region and environmental changes.



## T04S003 - THE BIOARCHAEOLOGY OF RITUAL AND RELIGION

**Organizers:** **Alexandra Livarda** (Department of Archaeology, University of Nottingham, Nottingham), **Richard Madgwick** (School of History, Archaeology and Religion, Cardiff University, Cardiff), **Santiago Riera Mora** (University of Barcelona, Barcelona)

The last decade has seen substantial development in approaches to the study of religion and ritual in past societies. Religions have traditionally been defined as belief systems mediating lifeways in opposition to the secular, whereas the term 'ritual' has frequently been used for practices and archaeological signatures that do not conform to the everyday, mundane and practical. Recent theoretical approaches (see Bell, Insoll, Handelman, Keane and Hamilakis) have attempted to bridge these dichotomies, stressing the performative, formal and repetitive aspect of rituals, which may or may not be related to religious practices, and highlighting the importance of the concept of materiality and social practice in their study. Building upon these debates and recognising ritual and religious practices as social phenomena, central to the creation of identities, this session seeks to explore these notions by focusing on perishable material culture. Plant and animal remains have diverse roles/meanings in such practices, as foods, offerings, sensory or healing mediums, grave goods, and worked artefacts. This session will showcase new and novel approaches to the bioarchaeology of ritual and religion, demonstrating the potential of practice-focussed studies for reconstructing lifeways and worldviews in past societies. Papers are welcomed on macro- and micro-remains, and multidisciplinary studies.

## ORAL PRESENTATIONS

### **Towards an Archaeology of the Social Meanings of the Environment: Plant and Animal Offerings at the Son Ferrer Prehistoric Funerary Mound (Mallorca, Balearic Islands)**

**Llorenç Picornell Gelabert** (University of the Balearic Islands, Palma), **Gabriel Servera-Vives** (University of Limoges, Limoges), **Santiago Riera Mora** (University of Barcelona, Barcelona), **Ethel Allué Martí** (Rovira i Virgili University, Tarragona), **Yolanda Llergo** (University of Barcelona, Barcelona), **Giovanna Bosi** (Università di Modena e Reggio Emilia, Modena), **Jordi Nadal Lorenzo** (University of Barcelona, Barcelona), **Manel Calvo Trias** (University of the Balearic Islands, Palma), **Jaume García Rosselló** (University of the Balearic Islands, Palma)

Son Ferrer is a multi-period funerary site, spanning a long time period. This paper discusses the results of the bioarchaeological studies carried out in the different contexts of this ritual site. During the Bronze Age (c.1700-1000 B.C.) a hypogeum was excavated and a group of ceremonial buildings were unearthed. At the beginning of the Iron Age (c.850 B.C.), a staggered turiform structure was built over the hypogeum, where ceremonial activities were performed. In the Late Iron Age (550-123 B.C.), the hypogeum was emptied and reused as a collective burial. The performance of these ritualized practices over a long period of time became central in the creation of the community identity. Both plants and animals played a role in ritual activities as foods, offerings and sensory mediums. Archaeobotanical, anthracological, palynological and zooarchaeological studies were carried out to evaluate the role of such perishable materials in ritualised practices. This multiproxy approach was combined with the study of a nearby off-site pollen record to acquire a picture of the local landscape. The data synthesis allowed interpretation on the cultural meanings of plants and animals that contributed in shaping a social landscape which contributed to the identity formation of the prehistoric communities.

### **Plant and Faunal Remains as Cultural Markers of Ritual Sites: Case Studies from Bronze Age Central Italy**

**Letizia Silvestri** (Durham University, Durham), **Leonardo Salari** (Università "Sapienza" di Roma, Rome), **Mario Federico Rolfo** (Università degli Studi di Roma "Tor Vergata", Rome), **Micaela Angle** (Soprintendenza per i Beni Archeologici del Lazio, Rome)

The study of ecofacts from Middle Bronze Age (MBA) sites in central Italy, including caves, has so far mainly been designed to identify subsistence strategies (Wilkens 1991, De Grossi Mazzorin 2003). This paper aims to re-evaluate bioarchaeology as a key element in the interpretation of non-mundane aspects of Apennines' MBA life. Published case-studies of ritual caves are compared with two recently-excavated caves from the same area (Mora Cavorso Cave and Pastena Cave). In particular, the rich faunal and botanical datasets from these new sites, focusing on the treatment, spatial and skeletal distribu-

tion, species selection and seasonality, are considered. Only through this innovative approach towards the ecofacts, crucial interpretive information about cave uses can be obtained. Our results shed light on the differences between the rituals carried out in each site. This could not have been achieved by analysing the artefacts and structures only, nor by studying the ecofacts with the only purpose of understanding economic aspects. Thanks to this approach, we have been able to go beyond the general definition of 'BA cult cave', identifying specific markers that are likely to provide a clearer picture of the BA Apennine rituality.

### **Bloodied and Burnt: Geoarchaeological Investigations into Ritual Activities at High Pasture Cave, Scotland**

**Jo McKenzie** (University of Bradford, Bradford)

Excavations within and around the limestone cave complex at High Pasture, Isle of Skye, have uncovered a fascinating range of archaeological structures and deposits, with radiocarbon determinations indicating activity from the Early Bronze Age through to the third century A.D. Rich and varied artefact and environmental assemblages from the Iron Age in particular indicate that this site formed a key part of the wider prehistoric landscape, with the cave and its immediate surroundings modified in ways suggesting an intensive use-history and significant ritual activity. Integrated geoarchaeological and micro-morphological investigations across the site have highlighted intriguing microscopic and geochemical features within the important 'threshold zone' immediately in front of the cave entrance. Here, a deep series of very finely stratified bone and fuel residue-rich deposits provides an insight into the nature of those 'repeated acts', which give the site its ritual character. Examined in conjunction with the unusual environmental assemblage from the site as well as the spatial organisation of archaeological features in this zone, this geoarchaeological study offers an exciting opportunity to attempt reconstruction of some of the ritual activity at High Pasture Cave, through the remnants of those all-important fuels, foods and feast-remains still held within the soil.

### **"Choicest Unguents": Molecular Evidence for the Use of Resinous Materials in Mortuary Contexts in Roman Britain and Consideration of Their Ritual Significance**

**Rhea Brettell** (University of Bradford, Bradford), **Eline M. J. Schotsmans** (Université Bordeaux 1, Bordeaux), **Nicole Reifarth** (Universität Bamberg, Bamberg), **Ben Stern** (University of Bradford, Bradford), **Carl Heron** (University of Bradford, Bradford)

The complexity of mortuary rites in Roman Britain warrants further investigation. One proposed class of inhumation burial appears to demonstrate an association between stone sarcophagi or lead-lined coffins, textiles, plaster body-coatings and organic residues. The additional level of investment denoted by the material aspects of this 'package' may represent a deliberate attempt at body preservation. Nonetheless, despite considerable speculation about the role of resins, no previous analytical research has been undertaken to confirm their presence or to identify their botanical origins. Here, using gas-chromatography mass-spectrometry and the 'biomarker' approach, we provide definitive molecular evidence for the use of specific resinous substances in Roman mortuary contexts in Britain. These include European coniferous resins (*Pinaceae* spp.) and exotic exudates transported from the Mediterranean or Levant (*Pistacia* spp., mastic or terebinth) and beyond (*Boswellia* spp., frankincense). The recovery of these resinous traces provides us with new insights into the treatment of the body in the late Roman period. Their material properties speak to both the biological reality of the decomposing body and to the individual as a social being. These findings also throw new light on the relationship between the remote province of Britannia and the rest of the Roman Empire.

### **Food for the Goods? Tracing Ritual Behaviour in Prehistoric Pottery Lipids**

**Jessica Smyth** (Cardiff University, Cardiff), **Richard P. Evershed** (University of Bristol, Bristol)

This paper considers the results of archaeology lipid analysis recently undertaken on an assemblage of Irish Middle Neolithic pottery vessels called Carrowkeel Ware. Coarsely made and crudely decorated, Carrowkeel vessels were first identified in funerary settings, in particular within passage tombs (Carrowkeel is the name of a passage tomb complex in Sligo, on the west coast of Ireland). More recently, an exclusively ritual context has been questioned however. In terms of their contents, is there anything that sets Carrowkeel bowls apart, or is a ritual interpretation based solely on how they are encountered in the archaeological record? How might we detect ritual in residues? Here, the contribution of molecular and compound-specific isotope analyses in understanding the role of this vessel type in prehistory is outlined and the results are discussed in the context of a recent wider study of the contents of c. 500 Irish Neolithic pottery vessels.

### **Social Exchanges with Rock Cliffs: Interpreting the "Sacrificial" Remains Associated with Finnish Neolithic Rock Painting Sites**

**Antti Lahelma** (University of Helsinki, Department of Archaeology, Helsinki)

The lake region of the interior parts of Finland is dotted with some 140 red ochre rock painting sites, dated mainly between the Early Neolithic and the Early Bronze Age (5200-1500 B.C.). Until the early years of the 21st century, our understand-

ing of these sites was based mostly on their iconography, which suggested an interpretation based on hunting magic or shamanism. However, recent excavations both above ground and underwater have broadened this view and brought to light new material related to ritual practices at rock painting sites. In particular, finds of animal bones and plant macrofossils indicate the preparation, consumption and sacrifice of food at the cliffs. The taxa identified suggest a close parallel with rituals carried out by a wide range of North Eurasian forager peoples of the historical period, such as the Sámi and the Khanty. They also bear evidence that the painted cliffs, which are often distinctly anthropomorphic in shape, were perceived as non-human agents and were brought into the social world of the hunter-fishermen of the Finnish interior through the ritual sharing of food.

### **Birds in Death: Avian Archaeology and the Mortuary Record**

**Julia Best** (Bournemouth University, Bournemouth)

The incorporation of avian material in mortuary contexts is varied in form and occurs in a wide range of temporally, geographically and culturally differentiated contexts. Focusing on Britain, but contextualizing this material within its wider European context, this paper considers the role of birds in ideas and actions surrounding death through traditional zooarchaeological study and via developing scientific techniques. Wild and domestic species will be discussed to explore the myriad of reasons for their presence, including ritual killing and deposition, adornment, symbolic representation of status and identity, and as food offerings. Case studies include the recurrent presence of large raptors in prehistoric Scottish Island mortuary contexts where data collation suggests that these birds occupied a symbolic role in the avian-human relationships, potentially transcending boundaries between life and death. Also considered is the inclusion of domestic fowl (*Gallus gallus domesticus*) in the historic grave environment (with a focus on the Roman and Anglo-Saxon periods). Through refined age and sex identification criteria for domestic fowl, examination of frequency and distribution, interpretation of isotopic data, and consideration of anthropological studies, birds' role in the expression of status, gender and identity and their place in food provision, sport and society can be explored more fully?

### **Plant Offerings and Fuel in Roman Cemeteries of the Apulia Region, SE Italy**

**Valentina Caracuta** (Department of Cultural Heritage, University of Salento, Lecce), **Girolamo Fiorentino** (University of Salento, Lecce)

Two roman cemeteries, full of burnt plant remains, were discovered in 2010 during rescue excavations in the vicinity of the town of Foggia, Apulia region. Well preserved ustrina, pits containing secondary deposits of pyre debris, were found in the sites of Masseria Amendola and Via Ciotta, while only one bustum, where cremation took place in situ in or above a pit, was found. The good state of preservation of the charred remains allowed identification of both the plant offerings and the fuel used for the cremation. Hazelnut (*Corylus avellana*), walnut (*Juglans regia*), and pine (*Pinus pinea*) were offered to the dead. The fuel used for the pyre changed according to the location of the necropolis and included thermo-mediterranean species, such as olive (*Olea europaea*) as well as mesophilus taxa, such as the downy oak (*Quercus pubescens*). Information about the natural vegetation cover was inferred from the analysis of the fuel assemblage, while the study of macroremains shed light on the Roman ritual habits. The presence of tools in association with graves provided further information about the gender of the deceased and thus relevant associations were established between the kind of offering and the gender/status of the deceased across the various burials.

### **Ritual Practices in the Archaic Sanctuary of Apollon at Ancient Zone, Thrace, Greece: The Evidence from Shell and Animal Bone Analysis**

**Rena Veropoulidou** (Museum of Byzantine Culture - Hellenic Ministry of Culture and Sports - Aristotle University of Thessaloniki, Department of Archaeology and History of Ancient and Byzantine Art and Civilization, Thessaloniki), **Daphne Nikolaidou** (Aristotle University of Thessaloniki, Department of Archaeology and History of Ancient and Byzantine Art and Civilization, Thessaloniki)

During the 1983-1992 excavations at the ancient coastal town of Zone, Thrace, Greece, a sanctuary devoted to Apollo was discovered, dated to the Archaic and Classical periods. The excavation of the Archaic complex produced ca. 2250 animal bones and 130 marine molluscan remains, as well as a wealth of other archaeological finds that demonstrate its importance. The consideration of taphonomic parameters, along with the careful study of the zooarchaeological assemblage recovered from the sekos of the temple indicate that it represents the remains of ritual activities, such as food waste from ritual meals, as well as food and votive offerings to the deity. This paper aims to explore the potential of bioarchaeological remains to detect ritual activities and to discuss the role of the specific terrestrial and marine faunas within the ritual sphere of the sanctuary. The study underlines the importance of the local and personal parameters in the cult beyond the written sources. Moreover, it highlights the need of careful recovery and study of bioarchaeological remains from cult places to decipher their significance, as well as of the integration of all lines of evidence in order to identify ritual practices.

### **Gifts to Isis: Plant Remains from a Sanctuary Context in Lecce (South-Eastern Italy)**

**Giampiero Colaïanni** (Department of Cultural Heritage, University of Salento, Lecce), **Girolamo Fiorentino** (University of Salento, Lecce)

Recent research has shown the archaeobotanical data utility to shed new light on many aspects of past societies, including religion. Plant remains can contribute in reconstructing worship dynamics, filling some of the gaps that the study of traditional artefacts leaves. This paper reports on the plant remains sampled during the excavation of a shrine dedicated to Isis (Iseion). This sanctuary, dated to the 1<sup>st</sup>-2<sup>nd</sup> century A.D., was found in the old town of Lecce in South-eastern Italy. Charcoal and charred seeds/fruits have given important information about the role of plant offerings during the Isiac liturgy in this context and its development. Furthermore, comparisons with archaeobotanical data from another five European Iseia have allowed assessing the possible relationship between particular plant species and Isis cult. This approach, apart from illuminating the symbolic meaning of plants, has also allowed shedding light on other, often overlooked, aspects, such as environmental, economic and social features. These are considered essential in understanding the presence and significance of certain taxa within the Isiac liturgy.

### **Ritual Creatures: The Role of Animals in the Performance of Iron Age Funerary Rites**

**Adrienne C. Frie** (University of Wisconsin-Milwaukee, Milwaukee)

In the Early Iron Age (800-300 B.C.) Dolenjska Hallstatt culture there is a rich iconographic tradition attesting to the central importance of animals in ritual performances, including hunting, sacrifice, and feasting. What is not represented iconographically is the role of animals in mortuary ritual, though the presence of zooarchaeological remains in graves of the period indicates that their inclusion was an integral part of the funerary performance. This paper discusses the animal remains from mortuary contexts in the Dolenjska Hallstatt culture, juxtaposed to their significance in iconography and settlement contexts. The animal bodies in graves illuminate not only the importance of feasting in mortuary rituals, but also the more esoteric use of animals, both parts and wholes, in the enactment of appropriate funerary rites. The disparity between wild and domesticated animal remains, the presence/absence of various elements, and the position of the animal remains with respect to the deceased may not only imply the differential significance of certain animal species and animal parts, but may also indicate that the various rituals involving animals have been related to the social personae of the deceased in ways that have not yet been systematically investigated.

### **The Anatomy of an Offering-Pit in Tepecik/Çiftlik–Niğde (c. 7000 BP)**

**Can Yumni Gündem** (Batman University, Batman)

Tepecik/Çiftlik mound is located close to the modern city of Niğde in Turkey. The site, excavated by Erhan Bicakci (Department of Prehistory from Istanbul University), was occupied from the Aceramic Neolithic to the Early Chalcolithic period. A Chalcolithic pit was excavated in the 2013 campaign, which contains only cattle and sheep remains. Evaluation of the pit remains is still ongoing since its study commenced at the very last days of 2013. However, the preliminary data indicate that the pit was filled up with at least one whole cattle, two whole sheep, and only with left front legs of more sheep (probably more than 15 individuals). This paper will discuss the zooarchaeological evidence of this pit alongside contextual and other finds information.

### **Plant Remains in Cremations: Anthracological Data from Eneolithic Burial Mounds in South-East Italy**

**Giorgia Aprile** (University of Foggia and Laboratory of Archaeobotany and Palaeoecology, University of Salento, Lecce), **Girolamo Fiorentino** (University of Salento, Lecce), **Elettra Ingravallo** (Laboratory of Palethnology, University of Salento, Lecce)

The aim of this paper is to study the burial mounds of Salve, a site located on the Ionian coast of Apulia. It is one of the most important examples of an Italian Eneolithic funerary and cultural complex. The research started in 2005 and led to the identification of 90 mounds arranged in an area of 100 hectares. Currently eleven monuments dating to the second half of the third millennium B.C. have been investigated. They appear as a build-up of earth and stones under which there is complex and diversified architecture. On a platform of large blocks there are arranged graves (containing cremations and inhumations) and other structures for ceremonial activities. The presence of a good amount of charcoal in specific areas of the mounds (tombs, pit with vessels, lithic platforms with pottery fragments) prompted the start of their systematic study in relation to their spatial distribution, to understand the exploitation system and strategies in selecting plant resources in funerary rituals and cult practices. It has been possible to examine the potential information of the archaeobotanical record to reconstruct these aspects, with a particular attention to the complex ritual system of cremation and its impact on the natural environment.

## A Zooarchaeological Study on Economic and Ritual Life in Prehistoric Must Farm

**Yiru Wang** (Division of Archaeology, University of Cambridge, Cambridge)

Must Farm is one of the most exciting prehistory archaeological sites yet found in North-western Europe. The archaeological evaluation of Must Farm so far identified multi-period prehistoric remains including both Neolithic and Bronze Age materials. Especially, the exceptional preservation and an unparalleled unique set of finds of the Late Bronze Age platform site make it both unusual and enigmatic. A detailed taphonomy and butchery observation was conducted on the bone assemblage from the Bronze Age platform site where richest specimens yields and was ended by the mysterious big conflagration in around 800 BC. People's special activities were revealed and further suggestions on the function of the site were made after the comparison with other Late Bronze Age sites in Southern UK. It is concluded that people's social behaviours and ideology world were closely related with the natural environments and economic pattern.

### Life after Ritual

**Naomi Sykes** (Department of Archaeology, University of Nottingham, Nottingham), **Holly Miller** (Department of Archaeology, University of Nottingham, Nottingham)

Zooarchaeologists have always gone in search of the 'unusual' and the 'special' to hold up as evidence of animal-based rites, with particular attention being given to the identification of sacrificial killing and structured deposition of body parts. This focus on dead animals is entirely understandable for a discipline that deals primarily with the remains of dead animals; however such an approach overlooks all those lifetimes of interaction that certainly saw a wide variety of animal-based rituals carried out as humans and animals walked hoof-in-hand-in-claw through their respective existences. This paper will provide a number of archaeological case studies to highlight the central roles that living animals have played in human life-cycles, behaviour and decision making. It will argue that animals do not (and did not) become 'ritual' only at the point of death.

## POSTERS

### Of Plants and Rituals in the Roman World

**Alexandra Livarda** (Department of Archaeology, University of Nottingham, Nottingham)

Archaeobotanical research has indicated the increased trade and introduction of several new plants in northwestern Europe by the 1st century AD, triggered by the expansion of the Roman Empire. Not all of these plant introductions, however, followed the same pathway or became engaged in the same manner in the socio-economic network of the Roman provinces. In this paper the social geography of various imported plants is outlined and an in-depth investigation is conducted on those plants that display a strong ceremonial association with burials and other cult sites, including pine nut and date. Taking into account and filtering out taphonomic parameters, the dispersal route of plant imports used as offerings in the northwestern part of the Roman world is delineated revealing contrasting patterns. Most marked is the dispersal of pine nut, having only a very weak association with military zones, and the Rhine frontier in particular, which played an important role in the dispersal of most other exotic plants to the north. Considering the different roles/perceptions of these plants along with contextual evidence, suggestions are offered towards the identification of the reasons underlying their occurrence patterns and the disentanglement of the role different agents played in their spread.

### Plant Uses and Meanings during the Belearic Bronze Age: The Funerary Cave of "Cova Des Pas" (Minorca Island)

**Santiago Riera Mora** (Seminary of Prehistoric Studies and Research, Department of Prehistory, Ancient History and Archaeology, University of Barcelona, Barcelona), **Gabriel Servera-Vives** (GEOLAB, UMR 6042/CNRS, University of Limoges, Limoges), **Yannick Miras** (GEOLAB UMR 6042/CNRS, University of Blaise Pascal, Clermont-Ferrand), **Llorenç Picornell Gelibert** (Department of Historical Sciences and Theory of Art, University of Illes Balears, Palma de Mallorca), **Ethe Allué** (Catalan Institute of Human Paleontology and Social Evolution, Tarra-gona), **Manon Cabanis** (GEOLAB UMR 6042/CNRS, University of Blaise Pascal, Clermont-Ferrand)

Archaeological excavations have shown that Bronze Age funerary rites in Minorca (Balearic Islands, Spain) are mainly characterized by practices related to corpse and hair treatments, such as dying, tonsure and hair-dressing. Archaeological work carried out in the funerary cave of Cova des Pas (Minorca) revealed 66 corpses that were buried within a short period of time (900-800 cal yr B.C.). Environmental conditions inside this cavity and possibly also the treatment of the corpse allowed the excellent preservation of organic remains, soft tissues and palynomorphs. Pollen, charcoal and sedimentological analyses have been carried out in the burials with the aim to reconstruct plant uses in the ritual practices, corpse and hair treatments, as well as possible aesthetic decorations of the bodies. To achieve these objectives, nine individuals and several elements, such as hair locks, hair-containers and shrouds, have been palynologically analysed. Samples were taken at high spatial resolution in a wide range of archaeological microcontexts. The results indicate that a wide range of plants was used in the body treatments and funerary offerings.



### **A Prickly Pear to Pick: The Deposits of *Lithospermum* in the Chalcolithic of NE Romania**

**Loredana Solcan** (Romanian Academy - Iași Branch, Moldova National Museum Complex Iași, Iași), **George Bodi** (Romanian Academy - Iași Branch, Iași), **Mihaela Danu** (Al. I. Cuza University of Iași- Faculty of Biology, Iași)

Our paper aims at presenting and discussing the discovery of *Lithospermum officinale* (Gromwell) and *Lithospermum purpureo-coeruleum* (Purple Gromwell) seed deposits from several Cucuteni sites (NE Romania, Vth - IVth millennia CAL. B.C.): Izvoare-Piatra Neamț, Poduri-Dealul Ghindaru and Frumușica. The large number of seeds (in the thousands) in the deposits, the morphological alteration observed in some instances (perforation) and the aesthetically pleasing appearance, suggest, at a first glance, their use as purely decorative body adornments. However, an in-depth contextual analysis and especially their association with other types of artefacts (such as selected animal skeletal parts) allows us to explore different meanings of this category of archaeological finds. Acknowledgement: This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS –UEFISCDI, project number PN-II-ID-PCE-2011-3-0885.

### **The Flora on Minoan and Mycenaean Frescoes and Its Botanical Determination**

**Anna Matys** (Charles University in Prague, Faculty of Arts, Prague)

This research will explore Minoan and Mycenaean flora on frescoes and their botanical determination. This subject was mainly dealt with in an in-depth study by Martin Möbius, who published in 1933 an article comparing representations with real plants. Since then only individual case studies were pursued. My study shows that in Minoan and Mycenaean iconography ca. 35 categories of plants can be distinguished, but scarcely on the species level. Some plants cannot be determined at all, while other representations combine features of many species. The study will illustrate individual plants and – as far as possible – their botanic models, with the seasons of their blossoming in Crete, on other islands in the Aegean and in mainland Greece. It will also discuss some specific colouring of flowers (whether the yellow saffron did exist or was only in the imagination of the painters). The last part of the study will discuss the question of choice of models for representation on various materials.

### **Paleobotanical Analysis of a Burial in Plan De Ayala Site, Durango, Mexico**

**Erika Talía Ibarra Ávila** (ENAH, INAH, Mexico, DF.), **Jose Luis Punzo Díaz**, **Gabriela Jounne Cedillo Gallardo**

In the Mesoamerican societies (part of Mexico and Central America) human burials were accompanied by various types of offerings according to the social and economic status of the deceased. These can range from flowers, some coins, food or a favorite outfit of the person concerned. At the state of Durango in Mexico after excavating many burials without visible offerings, which belonged to the chalchihuites culture of the Mesoamerican tradition, it became essential to undertake paleobotanical studies. Both macro- and micro-remains were studied to better understand how these societies treated their burials. In this work the results of these analyses are outlined, using burial in the Plan de Ayala site as a case study.

### **Ash Hill of Myrmekion as a Ritual Object**

**Vladimir Kolosov** (Saint Petersburg State University, Saint-Petersburg)

On the territory of several ancient cities of the northern Black Sea coast, there are archaeological complexes of thick ash hills that contain a wealth of artefacts and particularly ceramics. Their function is still a matter of debate. This research outlines the results of the excavation of one of the largest northern Black Sea coast ash hills, located at the central part of the ancient city of Myrmekion. Originally it was a hill about 7m high and 30m wide. Different data were synthesised on the quantity and quality of the mass material found during the excavation. Chronological markers were analysed and the timespan of the complex was defined as the first half of the 3<sup>rd</sup> century B.C. On the grounds of the fact that some votive objects, such as fragments of terracotta figurines and vessels with devoting inscriptions, were found in the complex it was concluded that the ash hill of Myrmekion was a peculiar cult object, possibly the result of mixed religious practices and cults of ancient Greeks and the local agricultural population.

### **Ritual Use of Animals in the Precucuteni-Cucuteni Civilisation**

**Luminita Bejenaru** (Institute of Archaeology, Romanian Academy - Iași Branch, Iași), **George Bodi** (Institute of Archaeology, Romanian Academy - Iași Branch, Iași), **Vasile Cotiugă** (Alexandru Ioan Cuza University of Iași, Iași)

Skeletal remains of animals discovered in possible ritual contexts are described in terms of their anatomy and symbolism. In the Chalcolithic sites of the Precucuteni-Cucuteni cultural complex (5050 and 3500 cal. B.C.) although the recovery of animal bones is rather limited, the animals seem to hold an important position in the religion of this ancient population. Zooarchaeological and archaeological studies highlight specific patterns in animal remains according to species, element and age representation, killing pattern, butchering, stratigraphic details, and association with other artefacts. Different categories of animals or animal parts found in archaeological contexts will be presented, which allow an association with ritual



practices to be delineated: burial of complete animals in settlements (e.g. skeletons of pigs discovered in the Cucuteni level of the Poduri-Dealul Ghindaru tell); parts of animals in settlements (e.g. bucrania and horn cores of bovines discovered in the Precucuteni site of Targu Frumos); parts of skeletons possibly used in divination or good fortune rituals (e.g. deposit of astragali at Poduri-Dealul Ghindaru tell). Acknowledgement: This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS-UEFISCDI, project number PN-II-ID-PCE-2011-3-0885.

### **Analyses of a Funerary Context and the Evaluation of DNA Recovery from EBA Human Bones by Different Isolation Methods**

**Neculai Bolohan** (Alexandru Ioan Cuza University of Iași, Faculty of History, Iași), **Lucian D. Gorgan** (Alexandru Ioan Cuza University of Iași, Faculty of Biology, Iași), **Mitică Ciorpac** (Alexandru Ioan Cuza University of Iași, Interdisciplinary Research Department, Iași)

Recent archaeological research in eastern Romania provided a new research possibility. The remnants of a tumulus dated to the EBA and belonged to the Jamnaja funerary group were investigated. The study offered the possibility of integrating new investigation methods and current theoretical and methodological approaches. Our endeavour was to provide a communication bridge between the sciences involved in such an analysis. In recent years there is an increased need to illustrate the genetic population structure at different moments in time in a geographic space with dynamic demographics (population movement, diverse ethnic interactions, layered societies). So far, a universal method that allows DNA isolation from materials at different stages of degradation does not exist. The aims of this study were: the evaluation of DNA quality and quantity, recovered from EBA human bones, with different degrees of degradation, using different methods of DNA extraction and an evaluation of the usefulness of these methods in anthropogenetics. The efficiency of DNA extraction, the degree of extract contamination by PCR inhibitors and the possibility of determining the DNA sequencing, were compared. Mitochondrial DNA from bones, at different states of degradation, was isolated using different methods.

### **The Cow Took a Look to the West. Animal Remains between Dietary Habits and Ritual in LBA Settlements**

**Immo Heske** (Georg-August-Universität Göttingen, Seminar für Ur- und Frühgeschichte, Göttingen), **Silke Greifen-Peters** (Independent researcher, Braunschweig)

Depositions containing bronze artefacts are common in the Late Bronze Age in Central Europe. The bronze depositions were often laid down outside the settlements. Excavations within settlements with excellent bone preservation not only give information about the dietary habits and species of the slaughtered animals, but are essential for an advanced understanding of rituals. Many LBA settlements near the Harz Mountains in Germany contain animal remains in a different context. They provide a chance to take a more in-depth look into ritual and religion. Skulls, selected bones and complete animal burials were treated differently than shattered bones of food remains. Analysing species and age of the remains was the next step to determine preferred parts of the body. In some cases skulls were covered with stones and laid down in pits between the houses. Tools and jewellery were made of selected animal bones, too. The different species and how they were deposited in the settlements do not form part of an everyday ritual but show the strong relationship between the inhabitants and the animals. The similarities and differences between consumed animals, the natural landscape and the remains of rituals are important for reconstructing the way of life and social structures.

### **Feasting in a Sacred Grove. A Multidisciplinary Study of the Roman Temple Area at Rapperswil-Jona Sg, Kempraten Seewiese, Switzerland**

**Pirmin Koch** (Kantonsarchäologie St. Gallen, Universität Zürich, Zürich), **Örni Akeret** (IPNA/Universität Basel, Basel), **Sabine Deschler-Erb** (IPNA/Universität Basel, Basel), **Heide Hüster-Plogmann** (IPNA/Universität Basel, Basel), **Christine Pümpin** (IPNA/Universität Basel, Basel), **Lucia Wick** (IPNA/Universität Basel, Basel)

During excavations in 2009/10 at the Roman *vicus* Kempraten (Rapperswil-Jona, Switzerland), situated on the eastern shore of Lake Zurich, a Gallo-Roman sanctuary with two temples and an altar for burning offerings was unearthed. According to current knowledge the sanctuary was built around 100 A.D. and was in use until the 4th century. Only the veneration of magna mater (Cybele) is proven by her mention on lead tablets. In several structures inside the walled-in area (temenos), waterlogging led to the excellent preservation of bioarchaeological remains. This gives the opportunity not only to obtain information about offerings and ritual practices, but also allows a detailed reconstruction of the local vegetation. A multidisciplinary study is currently under way, including archaeology, geoarchaeology, archaeobotany (macrofossils and pollen) and zooarchaeology (large and small bones). The first results show that not only large mammals were part of offering and feasting ceremonies, but also fish. Trees and forest undergrowth species dominate the plant spectrum. Some of the trees, particularly Scots pine, do not naturally grow in the area and must have been intentionally planted. This indicates the existence of a sacred grove, as mentioned by various classical authors.

### Ritual Meals at Mesolithic Yuzhniy Oleniy Ostrov, NW Russia?

**Kristiina Mannermaa** (Faculty of Arts, Department of Philosophy, History, Culture and Art Studies, University of Helsinki, Helsinki)

Communal consumption, sharing and offering of meat or other parts of animals during mortuary activities is one of the most widespread ritual traditions in Prehistory. In this paper I study mammal and bird remains from Mesolithic burials at Yuzhniy Oleniy Ostrov (NW Russia) in order to find evidence of different practices connected with funerary rituals, with emphasis on ritual eating and feasting. By careful analysis of the cutmarks on animal bones it is possible to reconstruct the butchering process and based on this, to interpret the different uses and roles of animals in mortuary practices. In Yuzhniy Oleniy Ostrov, very few bone elements from meaty parts of mammals (cervids, beaver and bear) are present, and the majority of the osteological material derives from teeth, skulls and mandible. These parts show no cutmarks and it is unlikely they were consumed. Instead, cutmarks on the osprey (*Pandion haliaetus*) and white-tailed eagle (*Haliaeetus albicilla*) bones clearly indicate filleting and removal of the major muscles from fresh carcasses. After removal of the meat the bones were deposited in graves.

### Animals for Pendants – Teeth and Claws Used for Pendants in Estonia

**Tõnno Jonuks** (Estonian Literary Museum, Tartu), **Eve Rannamäe** (University of Tartu, Tartu)

Pendants made of animal teeth are one of the most common and numerous decorations among Estonian archaeological finds. However, no in-depth studies have been conducted so far and thus only very general and universal interpretations have been suggested, e.g. people claimed for the animals' strength and power while using their teeth for ornaments. Detailed analysis points to a more complicated picture. Two major periods of using tooth pendants can be highlighted – the hunter-gatherer Neolithic (ca 5000–2000 B.C.) and Late Iron Age (ca 800–1200 A.D.), whereas tooth pendants are almost absent in-between. The paper also shows the evident change in animal species in those two periods. Differences in species and chronology make us doubt of a single universal interpretation; instead there seem to be several meanings behind the tradition.

### “Games’ Ritual”. Knucklebones in Relation to the Architectural Plan of the Roman Bath Complex and Early Byzantine Basilica Complex on the Archaeological Site Novae (Bulgaria)

**Marek Niesobski** (Adam Mickiewicz University in Poznań, Poznań)

Considering the group of knucklebones from the excavations of the International Interdisciplinary Archaeological Expedition AMU “Novae” we can draw conclusions about the meaning knucklebones in daily life. The context where knucklebones were found allows determining the function of complexes' rooms and confirming of the function of knucklebones as objects used mainly to play. The relationship between the rooms of the complexes and knucklebones can be investigated. Knucklebones were found in resting and recreation areas. With regard to the baths we noticed a close association and suggested that these were areas where games with knucklebones had an important place, baths having the function of the center of cultural and social life of the city. The Bishops complex comprises two basilicas, baptistery, ptochotrofium and the residence of the bishop. This complex shows the possibility of simultaneous coexistence of a religious zone with others of practices where knucklebones were employed as objects used especially in games. Knucklebones were undoubtedly a popular form of entertainment and recreation both in the Roman camp and then in late Roman and early Byzantine city Novae, Moesia Inferior.

### Animals and Domestic Rituals during the Iberian Culture (Iron Age) in the Valencian Territory (Spain)

**M<sup>a</sup> Pilar Iborra Eres** (Laboratorio de Arqueología y Paleontología, CulturArts Generalitat, Valencia), **Rafael Martínez** (Laboratorio de Arqueología y Paleontología, CulturArts Generalitat, Valencia), **Pere M. Guillem** (Laboratorio de Arqueología y Paleontología, CulturArts Generalitat, Valencia)

The term Iberian Culture is used to define the set of peoples who inhabited the western strip of the Iberian Peninsula. The Iberian society (600-100 B.C.) was highly urbanised and socially stratified. From an economic perspective, the society was still predominantly agrarian, with agriculture and livestock husbandry constituting the basis for subsistence, although there was also some integration in the Mediterranean trade routes. From a political point of view, this world was structured into different territories. These were characterised by a significant and complex hierarchical settlement pattern with a functional specialisation. This paper analyses a series of animal burials performed on several settlements from three Iberian territories located in the present-day region of Valencia (Spain) during the Iron Age. There are different animal deposits in the domestic areas of the settlement. The main species represented are sheep, goat, pig, dog and equidae. The selected taxon, age, gender, anatomical unit together with the butchery and other anthropogenic marks (consumption/cooking) allow us to distinguish several types of domestic rituals, some related with public/private celebrations and others with the funerary world. In the last case the funerary world is suggested by the association of children's bones together with animal bones.

## Firewood, Funerary Rituals and Foundational Offerings in the Roman Site of Reza Vella (Ourense, Spain)

**María Martín Seijo** (Universidad de Santiago de Compostela, Santiago de Compostela)

This paper discusses the archaeobotanical results of the samples recovered at the site of Reza Vella (Ourense, Spain). These data provide valuable information about firewood usage in Roman funerary rituals and foundational offerings in the North-west of the Iberian Peninsula. The burial place of Reza Vella comprised several cremation and inhumation graves beside a road. The charcoal samples from cremation burials were recovered in primary (bustum, ustrinum) and secondary contexts (graves). These structures were dated from the 1st to the 2nd centuries A.D. Although a wide range of taxa was identified, the most ubiquitous species in cremation contexts were *Quercus* sp. deciduous, *Fraxinus* sp. and *Pinus* tp. *pinæa/pinaster*. In the surroundings of the necropolis, under the road, a vessel was found. The charcoal recovered inside this vessel probably was part of a foundational offering. This context was dated from the 3rd to the 4th centuries A.D. Finally, charcoal samples from inhumation graves dated from the 2nd to the 7th centuries A.D. were also analysed.



## T04S004 - YOUNG RESEACHER SYMPOSIUM: LANDSCAPE ARCHAEOLOGY IN GREECE AND TURKEY

**Organizers:** **Burcu Erciyas** (Middle East Technical University Graduate Program in Settlement Archaeology, Ankara), **John Bintliff** (University of Leiden, Leiden)

This session will bring together young researchers from Greece and Turkey who work with regional survey and settlement analysis, or landscape reconstructions in the Aegean region or Anatolia. The intention is to share methods, approaches and compare results, and not least encourage active collaboration between these neighbouring countries.

## ORAL PRESENTATIONS

### Observation on Comparative Study of Greco Persian Water Works in Classic Period (6th -4th BC)

**Seyed Abazar Shobairi** (Athens University, Athens)

Basically, development of water supply and irrigation system were not tack place by sudden. All cultures need to water management for their personal use, for their livestock, and for irrigation. Dam, irrigation canal water conduits, and other hydraulic structures have been found in the ruins of the oldest civilization. The subject of irrigation and drainage systems in antiquity is one that has attracted sporadic, highly specialized and highly localized attention. Recognition of irrigation and water hydraulic works are prominent for improving the social and economical life of the past. Due to cross-cultural interaction on the architectural style, it seems that irrigation systems and hydraulics works in Classic and Achaemenid Persia have a relationship and similarities. Some examples of hydraulic projects of both periods are discussed in this article. This is illustrated by examining the classic of water management in the ancient Greece and Persia, identifying the classical (approx. 6- 4 BC.) as a glorious period when significant investment in water management occurred, laying for the development of communities in the Greco Persian water works interactions. In this paper I will discussed on mentioned topic upon of archeological material and some historical context.

### Urla/Seferihisar Archaeological Survey Project: Methodology and Results

**Elif Koparal** (Hitit University, Çorum)

Urla/Seferihisar district (İzmir-Turkey) covers a considerable part of Urla-Çeşme peninsula which has been a setting for two Ionian city-states Klazomenai and Teos as well as being a significant part of the Aegean network since the Early Bronze Age, perhaps Neolithic. The archaeological survey project aims to define the settlement history and shifting patterns of the region diachronically from Pre-historical periods to Ottoman period, while explaining the changing landscapes of the region. The survey project serves for establishing a cultural inventory for the region and provides a source of data for various research focused on different themes and periods. The paper will include the methodology of the project and results of the survey for different aspects.

### Recent Developments in Archaeological Survey in Greece and Turkey

**John Bintliff** (Universty of Leiden, Leiden), **Burcu Erciyas** (Middle East Technical University, Ankara)

Recent Developments in Archaeological Survey in Greece and Turkey Archaeological surveys in the Mediterranean in the past 30 years have been characterized by systematic and intensive field-walking with the intention of collecting as much data as possible regarding the rural as well as the urban, and focusing on a larger, regional understanding of the studied landscape. While this kind of a survey methodology is well-established and in fact devised mainly in Greece, in Anatolia, the "Near Eastern" tradition (Doonan 2012) has prevailed. This type of survey mainly focused on identifying sites, establishing relations between the determined sites and their environment, and anticipated gathering information regarding larger issues in social, economic and political character of a particular period. This tradition of survey is nowadays embracing intensive, systematic survey methods and presenting a hybrid model. This hybrid model is likely to benefit surveys all

across Mediterranean and has the potential to provide more reliable knowledge on ancient societies. In this introductory paper we would like to review the recent developments in archaeological survey in Greece and Turkey in order to provide a backdrop for the session.

### **One-Man Survey on an Aegean Island: Can It Be Done?**

**Michalis Karambinis** (Archaeological Service, 23rd Ephorate of Byzantine Antiquities, Chalkida)

Small islands are usually considered as ideal survey cases, as they are naturally defined presenting at the same time a cultural unity. This paper presents the methodology and results of a site-based intensive and extensive survey on the island of Skyros, focused on the Late Roman and Post-Roman periods. The first point to be challenged is whether a one-man survey and sampling strategies applied in the case of Skyros have accomplished to build a survey comparable to the landscape-based, “siteless” intensive ones. Matters of survey design, site definition, site density, on-site and background densities are presented. The second focus point is the chronological frame of the survey. As often cited in the bibliography, respectable archaeological survey projects should be diachronic. However, many surveys conducted in Greece until recently, despite their diachronic perspective, their emphasis was mainly concentrated in the Prehistoric and Greco-Roman periods, with the Post-Roman era examined superficially. In contrast to the majority of survey projects in the Aegean, Skyros survey was focused on the Late Roman and Post-Roman periods, adjusting the specialization of the coordinator onto the entire region. It is challenging to examine if (and how) the diachronic perspective of the island’s regional history was achieved.

### **Byzantine Archaeology in Greece and Turkey: Combined Efforts in Landscape Research**

**Athanasios K. Vionis** (University of Cyprus, Nicosia)

The aim of this paper is to share thoughts about the current state and future potentials of landscape research in present-day Greece and Turkey in our quest for settlement analysis and landscape reconstruction in the Byzantine Aegean and Anatolia. Aspects related to site location, land use, production and consumption or non-elite material culture were generally neglected by the field of Byzantine Studies in Greece and Turkey until a couple of decades ago, at a time when the stage was occupied by monumental art and architecture. The number of studies, however, that have been published and the number of theses that have been completed over the past ten to fifteen years on the archaeology of the period is overwhelming. This contribution focuses on issues related to sacred and settled landscapes, cultural interaction and economic activity in the hinterland of Anatolia, Mainland Greece and the Aegean islands in an attempt to recover the picture of *réalités byzantines* in a local, regional and Mediterranean context.

### **Landscape Environment and Settlement of Prehistoric and Ancient Lefkas**

**Gazi Anastasia** (Greek Forest Service, Directorate of Coordination and Supervision of Forests, Athens)

Human societies of the past were closely related to variations in the resource potential of the landscape, so that the location and size of ancient settlements closely mirrored the local ecology. Ancient communities with the same ways as animals behavior, behaved territorially, by choosing settlement location which controlled discrete blocks of adequate resources to make the new settlement viable. As human and natural environment are interrelated senses, inextricably linked together, human is initially influenced by the surrounding landscape, the animal and plant equilibrium, the geological and climate conditions. Lefkas is one of the seven Ionian Islands in west Greece and its mainly characteristic is that is separated from the western coast of mainland Greece by a narrow artificial straight. In order to study the development of settlements in relation to natural environment and the landscape, were used different approaches like the detailed study of the landscape, the geology, the vegetation, the recording of archaeological sites, the study of the past climate, sea level or coastline changes. In addition, data from palaeoseismic events were considered, as well as water resources of the island, grazing areas, plains and the existence of evergreen or coniferous forests. Every trace of human in the environment is a point of reading and interpretation.

### **Medieval and Post-Medieval Rural Landscapes: Towards an Integration of Material and Textual Histories**

**Effie Athanassopoulos** (University of Nebraska Lincoln, Lincoln)

In the past three decades intensive archaeological landscape projects in Greece have produced a rich, diachronic record of rural settlement and land use. Prior to this development, little information was available for certain historical periods, especially the medieval, given the paucity of extant textual sources and archives. At the same time, because the research design of regional surveys has its roots in the processual, ‘ahistorical’ approach, it is well-suited to address broad, generalizing themes, of alternating patterns of nucleated and dispersed settlement. Mainly, methodological issues have dominated the discussion, centered on site definition and collection strategies. Less effort has been invested in relating site variability to historically known categories. Medieval and post-medieval fiscal documents, for example, are an important source and can assist us in refining our categories and interpretations. Here, we don’t seek to establish one-to-one correlations of sites mentioned in historical documents but rather to develop a broader, conceptual framework by utilizing multiple sources.

This paper will conclude with a case study, the Nemea Valley Archaeological Project (NVAP), advocating an integrated approach that blends archaeological (surface survey, excavation) and historical perspectives.

### **Suitability of Biased Charcoal Assemblages for Woodland Reconstruction - Aktopraklık, an Example from Northwestern Turkey**

**Tim M. Schroedter** (Graduate School “Human Development in Landscapes” University Kiel, Kiel), **Oliver Nelle** (Graduate School “Human Development in Landscapes” University Kiel, Kiel)

In the framework of a current PhD- project, wood charcoal from archaeological excavations is used to trace strategies of wood use and the impact on the vegetation by Neolithic and Chalcolithic people in southeastern Europe and Turkey. The botanical remains from the Neolithic to Chalcolithic settlement Aktopraklık, northwestern Turkey, are used to reconstruct the woody vegetation in the surroundings of the site. Despite a very selective wood use, a wide range of taxa provides insight into the used woody vegetation. The shifting of the site during the time between the middle of the 7th and the middle of the 6th millennium BC offers the possibility of comparing charcoal assemblages from different settlement phases. First results indicate mixed deciduous oak woodland in the vicinity of the settlement, which allowed the prevailing use of oak wood for timber and fire wood throughout the time of inhabitation. Visible deviations in the charcoal assemblages from the single phases might indicate not only changes in the vegetation but also in wood acquisition strategies.

### **Karadağ: New Perspectives on an Historic Landscape**

**Yasemin Özarslan** (Koç University, Istanbul), **Sam Turner** (Newcastle University, Newcastle), **Mark Jackson** (Newcastle University, Newcastle)

The prominent volcano of Karadağ, Karaman, in south Central Turkey is famous as the Byzantine Binbirkilise (One Thousand and One Churches). Here we present a case-study which explores the landscape of the mountain using historic landscape characterisation (HLC), a technique that has been used extensively in the UK and Ireland to inform cultural heritage management, landscape management and planning. The archaeological applications of the technique have also proved useful in understanding the historic development and significance of archaeological landscapes. Apart from a couple of examples (e.g. Crow and Turner 2009, Green 2012), the technique has not yet found a place in the archaeology of Turkey. This study combined previous research (including photographic records created by the early 20th-century traveller Gertrude Bell) with data from Google Earth Pro to implement a retrogressive analysis of historic landscape features and build an HLC. The study has enabled the identification of at least twenty different landscape types, including field patterns, rough ground and ancient settlements. It provides insights into the ways people have modified the Karadağ landscape through current and past land-use. As a result, the study shows how the HLC technique can contribute to our understanding of past agropastoral landscapes and inform current archaeological research in Turkey.

### **To Tame a Landscape: Urban Image as a Way of Self-Presentation in Pednelissos (Pisidia, SW Asia Minor)**

**Ahmet Çinici** (Independent Researcher, London)

Landscape is the wider holistic context, both physical and cognitive, which people live in, interact with, shape, modify and reshape. As a consequence of their day-to-day interaction with and experience of their landscape, people create a representation, a cultural image of their landscape in their minds. While people structure and meaningfully shape the environments they live in through their everyday activities, they also shape the image of their landscape in a way to express the way they think, symbolize, give a meaning and attach a value to their surroundings. This image of the landscape can function as an ideological tool, for instance, to build a common past, express a common identity and create a sense of community with shared values and a way of thinking and understanding the world. This paper investigates the urban image constructed in Pednelissos, a Pisidian city on the southern fringes of the Taurus, occupied continuously at least between the third century BC and seventh century AD. How the inhabitants shaped, gave a meaning, experienced, understood and changed their landscape and the significance of this process within the socio-cultural context of the time are discussed on the basis of the architecture and urban planning of Pednelissos.

### **“Digging” Streets from Maps: A Retrogressive Analysis of Istanbul’s Street Network**

**Vicky Manolopoulou** (Newcastle University, Newcastle)

Until recently, the value of early representations of Constantinople was doubted, because they were considered not to follow any laws of cartography. Lately, however, research has shown that these representations have some degree of accuracy, and can thus be useful tools in the study of the topographical transformation and evolution of the city. Some of these early representations include depictions of street networks; the existence of the latter is often acknowledged but has not yet been approached, due to the depictions being considered a product of the imagination. In the absence of much published archaeological data on streets, the value of historical maps in a retrogressive analysis of the street network is significant. This paper will examine the value of historical maps and early bird’s eye views, by tracing the earliest representations to later historical maps and the modern street network, and in doing so will test whether represented networks



are analogous to reality. Digitised historical maps and early bird's eye views, spanning a period from the 15th to the 21st century, have been selected for analysis. Using GIS to store and query the data will result in a map where "map objects" such as sites and roads can be referenced to historical maps.

### **Spatial Interactions and Socio-Political Change before the Emergence of the Palace of Phaistos: Modelling the Evolution of Regional Settlement Hierarchies in South-Central Crete**

**Eleftheria Paliou** (University of Heidelberg, Heidelberg - University College London-UCL, London)

The political organisation in Bronze Age Crete just before or at the time of the appearance of the first Minoan palaces has been a continuous focus of discussion in Minoan archaeology in recent years. To what degree had Phaistos dominated its surrounding landscape? When looking at the regional scale can we identify an hierarchical political structure with a single centre of power or a picture of greater socio-political complexity that suggests the existence of more than one competing local centers? To date, Aegean Bronze Age scholars have attempted to answer these questions looking into evidence deriving from comparative material culture analysis, excavation and archaeological surface surveys. Nonetheless, these attempts have often been hindered by the very fragmentary state of the archaeological record. This paper builds on recent work on computational analysis and the modelling of dynamic geographic networks (Bevan and Wilson 2013) to study the evolution of regional settlement hierarchies in South-Central Crete (Mesara and Asterousia regions) at the period just before the emergence of the palace of Phaistos. The model seeks to contribute new evidence to the archaeological debate by predicting the flow of people and/or goods between settlements, and the likely distribution of settlement sizes, which may be indicative of urban growth and the accumulation of political, economic and ideological power at the regional and micro-regional scale.

## **POSTER**

### **Multiple Proxies, Single Story: Integrating Stable Isotope Analysis and Wood Charcoal at Kaman-Kalehöyük, Turkey**

**Nathan Wright** (University of Queensland, Brisbane), **Andrew Fairbairn** (The University of Queensland, Brisbane), **Quan Hua** (Australian Nuclear Science and Technology Organisation, Sydney)

This poster outlines the results of a detailed stable isotope analysis and wood charcoal analysis from the site of Kaman-Kalehöyük, Central Anatolia, Turkey. Generalised and multi-episodic contexts such as pits have been utilised in conjunction with multiple proxies such as pollen data, plant macrofossil assemblages, geomorphological data, ethnobotanical, ethno-historical, and ecological analogues to reconstruct the ancient woodland landscape surrounding the site. This diachronic study encompasses occupation at the site from the Transitional Early Bronze Age (c. 2000 B.C.) to the Late Iron Age (c. 300 B.C.). However, emphasis is placed upon the Middle to Late Bronze Age periods which encompass the Hittite occupation of the site with the aim of first determining the extant woodland vegetation prior to Hittite arrival and then further investigating whether deforestation of the climax woodland vegetation occurred during or after the Hittite occupation phase. The results of the wood charcoal analysis and stable isotope analysis are coupled with previous and ongoing research on agricultural practices at the site. The results indicate that the Hittite occupation coincided with both dramatic and more subtle and nuanced changes in the local woodland vegetation.



### **T04S006 - ISOTOPIC INVESTIGATIONS OF PASTORAL PRODUCTION: INNOVATIVE APPROACHES TO PATTERNS OF MOBILITY, ECONOMY, AND EXPLOITATION**

**Organizers: Alicia Ventresca Miller** (Christian-Albrechts-Universität zu Kiel, Human Development in Landscapes, Institute for Prehistory and Protohistoric Archaeology, Kiel), **Cheryl Makarewicz** (Christian-Albrechts-Universität zu Kiel, Human Development in Landscapes, Institute for Prehistory and Protohistoric Archaeology, Kiel)

As researchers of pastoral societies are well aware, the pastoral lifeway has been strongly linked to patterns of intensive mobility, theories of economic and subsistence based dependency, and a general marginalization of herding groups. We now understand that pastoral groups have multiple adaptive strategies and therefore cannot be distilled into a specific set of mobility, economy, or consumption practices. Advances in isotopic techniques aid in the documentation of movement, subsistence, circulation, and productivity in the archaeological record. The aim of this session is to discuss pastoral production from a perspective of inclusiveness toward the flexible strategies of these groups in terms of their interactions with the environment, exploitation of animal resources, and movement within the landscape. Therefore, we focus on scholarship that uses innovative isotopic approaches to study variation between groups that fall under the umbrella of pastoral production. Session papers will take a wide methodological focus including isotopic analyses of human and animal bone and teeth, textiles, modern tissues and hair, animal fodder, and lipids from vessels. The aim of this session is to discuss innovative techniques in isotopic analyses related to human and animal subsistence and mobility; animal herding, foddering, exchange, exploitation, and circulation.



## ORAL PRESENTATIONS

### Farming Pastoralists? Bronze and Iron Age Diets on the Asian Steppes

**Rick J. Schulting** (University of Oxford, Oxford), **Eileen Murphy** (Queen's University Belfast, Belfast), **Svetlana V. Svyatko** (Queen's University Belfast, Belfast), **Mike Richards** (University of British Columbia and the Max Planck Institute for Evolutionary Anthropology, Vancouver)

Recent years have seen increasing interest in isotopic studies of past steppe populations. The results show surprisingly variability, over both space and time. An increased emphasis on pastoralism is inferred from the Eneolithic to the Early Bronze Age of the Samara Valley in the middle Volga region. Further east, a major contributing factor to the observed isotopic variability is the appearance of a C4 'millet signal' in the diets of Late Bronze Age and Iron Age populations in the Minusinsk, Tuva and Altai Basins of Southern Siberia. The importance of freshwater fish – often highlighted in recent isotopic studies – seems to be highly variable. This paper presents a broad overview of human and fauna isotope measurements across the Asian steppes, emphasising the contributions of both climate and culture in the observed patterns.

### Investigating Dietary Habits during the Xiongnu Period (Mongolia) Using Multiple Dietary Proxies (Radiocarbon, $\delta^{15}\text{N}$ , and $\delta^{13}\text{C}$ )

**Ricardo Fernandes** (Leibniz-Laboratory for Radiometric Dating and Isotope Research, Kiel University, Kiel), **Ursula Brosseder** (Institute of Pre- and Protohistory, University of Bonn, Bonn), **Tsagaan Turbat** (Institute of Archaeology, Mongolian Academy of Sciences, Ulaanbataar)

The Eurasian Steppe is characterized by temperate grasslands and defines a vast geographical area that connects Europe to Central Asia. Past populations, living within this ecological biome, are often associated with nomadic pastoralism that, once adopted, became a predominant mode of subsistence. Here, we present new radiocarbon and isotopic data obtained during a study on Mongolian material originating from the Burkhan Tolgoi cemetery dated to the Xiongnu period (3rd century BC – 1st century AD), the time of the first steppe empire in Central Asia. Bone material was collected from closed archaeological contexts containing associated pairs of human and terrestrial herbivore bones. Collagen extracted from bone material was prepared for radiocarbon and isotopic analysis ( $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$ ). Obtained results showed the presence of human dietary radiocarbon reservoir effects and thus that aquatic resources represented a significant dietary contribution. This illustrates the use of radiocarbon as a supplementary dietary proxy. In addition, carbon stable isotopes measured in human bone collagen were substantially elevated when compared with animal bone collagen, suggesting that the humans were consuming sources of dietary protein having a distinctive C4 signal. It is hypothesized that this was probably due to the consumption of domesticated C4 cereals (e.g. millet).

### Diet and Economy of the Neolithic to Early Iron Age Populations from South of Western Siberia: New Data on the Introduction of Millet

**Svetlana V. Svyatko** (Queen's University Belfast, Belfast), **Paula J. Reimer** (Queen's University Belfast, Belfast), **Marina P. Rykun** (Tomsk State University, Tomsk), **Olga E. Poshekhnova** (Institute of North Development Issues, Siberian Branch of the RAS, Novosibirsk)

We present the results of carbon and nitrogen isotope analysis and AMS radiocarbon dating of Neolithic to Early Bronze Age human and faunal individuals (ca. n=100) from the Altai and Tyumen regions, south of Western Siberia (30 sites in total). The study investigates the dietary aspects of the population's lifestyle, and in particular – introduction of millet to the region and the role of fishing in the economy of the populations. The main conclusions from the study include: a) the diet of all populations analyzed included fish; it's proportion gradually decreased towards the Early Iron Age; b) the diet of all Neolithic-Bronze Age populations was mainly C3-based, while in the Early Iron Age it became much more diverse for the Altai people only (mainly between groups, rather than within), and occasionally included large proportions of a C4 component (millet); c) the latter was likely related to introduction of millet to the pre-Altai region approximately in the 5th-3rd c. BC from Northern China. We can speculate that millet came to the area immediately from Tuva Republic or Northern Kazakhstan to the south, rather than from the Minusinsk Basin to the east, and it spread to the Tyumen region at later period.

### Changing Lives, Changing Times: Diet and Subsistence along the Late Roman Frontier in Hungary

**Susanne Hakenbeck** (University of Cambridge, Cambridge)

This paper examines the interactions of nomadic pastoralists with settled agricultural populations across the late Roman frontier in the Carpathian basin. Using theoretical approaches to how identity is expressed in burial practice together with isotope analysis, it examines how ethnicity, mobility and subsistence practices feed into each other. The focus of this paper is on five cemetery sites from the fifth century AD that cut across the frontier zone of the provinces of Pannonia

into the Hungarian Plain. The isotopic analysis of multiple tooth and bone samples from the same individual enables us to reconstruct sequential dietary histories (using carbon and nitrogen isotopes from bone collagen and dentine) and to track changes in diet that may have coincided with changes in residence (using oxygen and strontium isotopes from tooth enamel). This paper provides a series of snapshots of the lives of individuals in the late Roman frontier zone. Changes in diet, both over a lifespan and across the frontier zone, reveal whether nomadic-pastoralism and farming were mutually exclusive strategies or whether they were adopted by the same individuals or groups at different times.

### **Characterising Changing Animal Management Practices, Land Use Strategies and Palaeoenvironments through Time in the North Atlantic Islands: An Isotopic Approach**

**Jennifer Jones** (Cardiff University, Cardiff), **Jacqui Mulville** (Cardiff University, Cardiff)

The Scottish North Atlantic Islands represented challenging environments for archaeological populations, requiring careful management of animals. Until recently little has been understood about broad temporal trends in animal husbandry and wider economies there. Bulk isotopic analysis (C13 and N15) of faunal remains was used to explore past animal diets, providing insights into animal management strategies in each period. In total 622 wild and domestic fauna were sampled, from Orkney and the Western Isles to characterise changes in animal management and economies through time. In Neolithic Orkney, sheep were grazed on the shorefront, to provide fodder during the harsher winter months. Bronze Age specimens indicated that domestic animals were being foddered in locations across the landscape, indicative of more localised management. Within the Iron Age Broch of Dun Vulcan several pigs were being fed fish. The arrival of the Vikings to the islands marks a dramatic change in economies. Isotopic evidence indicates that manuring is practiced in both island groups. Cattle and sheep are no longer foddered on the shorefront, as populations could overwinter stock without relying on marginal pastures. Detailed sampling of fauna for C13 and N15 analysis can revolutionise our understanding of changes in animal management and economic practices.

### **Where to Pasture the Cattle? Animal Management in Swiss Lakeshore Settlements Using Multi-Isotope Analysis**

**Claudia Gerling** (University of Basel, Basel), **Thomas Doppler** (University of Basel, Basel), **Corina Knipper** (Curt-Engelhorn-Centre Archaeometry gGmbH, Mannheim), **Volker Heyd** (University of Bristol, Bristol), **Moritz Lehmann** (University of Basel, Basel), **Alistair Pike** (University of Southampton, Southampton), **Jörg Schibler** (University of Basel, Basel)

The Swiss lakeshore settlements are among the best investigated archaeological sites in the world due to the exceptional preservation of the finds and the broad range of scientific disciplines that have been applied to study the archaeological material and environment. In a project based at the University of Basel we are analysing cattle and deer remains from Neolithic lakeshore settlements using a multi-isotopic approach. We apply strontium, oxygen, carbon and nitrogen isotope analyses to gain insight in possible changing strategies of animal management, from herding and dairying to hunting. Analysing material from sites located in the lower Lake Zurich region enables us to sample an almost continuous record from about 4300 to 2600 BC, whereas the single-phased site of Arbon Bleiche 3 at Lake Constance is very precisely dated and provides the opportunity to study herd management on a year on year basis. Here, we present preliminary strontium isotope measurements obtained by TIMS and laser ablation inductively coupled plasma mass spectrometry. Combining high spatially resolved LA-ICP-MS measurement on faunal tooth enamel with wide ranging environmental strontium sampling in the surroundings of the sites enables us to trace cattle mobility related to seasonal herding strategies.

### **Moving Sheep and Goats of Bakhtiari Nomads. Documenting the Origins of Vertical Transhumance in the Zagros Hilly Flanks**

**Marjan Mashkour** (CNRS/ Natural History Museum, Paris)

For several decades questions on the sedentarity / mobility of human communities of ancient Middle East are debated by archaeologist. Recent developments of biochemistry tools and their application to archaeology have offered the possibility of documenting the mobility using several key isotopes, Oxygen, Carbon and Strontium. The Middle East has a deep-rooted tradition of pastoral nomadism, although the exponential socio-economic upheavals during the last 100 years, especially after the 50', has drastically modified and remodelled this fundamental social component of this region. Nomadic tribes are progressively disintegrating as well as their life style. This paper presents the results of an ethnoarchaeological field project in the Zagros region within the Bakhtiari tribe for documenting the question of vertical transhumance in present and past. Our aim was: to build an analytical model for the vertical transhumance of caprine herds base on the stable isotopes of Carbon and Oxygen of the apatite through serial sampling of tooth enamel- to use this model for the interpretation of similar data on prehistoric sites of the Zagros from the Neolithic to the Iron Age where pastoral pattern need to be more precisely defined - to gather ethnographic information related to this pastoral nomadic vanishing community.

### Who Saw the Potential? Early Pastoral Production in the Arid Margins

**Holly Miller** (University of Nottingham, Nottingham), **Douglas Baird** (University of Liverpool, Liverpool), **Jessica Pearson** (University of Liverpool, Liverpool), **Angela Lamb** (NIGL, Nottingham)

Isotopic analysis has recently been used to inform the debate as to whether indigenous steppe communities or village-based pastoralist first saw the potential of the Eastern Jordanian arid regions as an area for pastoral activities in the Early Late Neolithic period (6900-6300 cal BC). Indications of herding movements from arid (Wadi Jilat 13 and 25) and Mediterranean occupations ('Ain Ghazal) were revealed through carbon ( $\delta^{13}\text{C}$ ) and nitrogen ( $\delta^{15}\text{N}$ ) stable isotope analysis of caprine bones in order to identify the potential foraging range of herded animals, suggesting the regions in which they, and their accompanying herders, spent lengths of time. Differences in the isotope values of animals from WJ13 and WJ25 suggest that different herding strategies were used to maintain animals in the arid region. Studies of other elements of material culture (chipped stone and architecture) and artefact circulation patterns have allowed the isotope evidence to be viewed in a wider context which further supports the idea that WJ25 has closer links to communities of the Mediterranean region, and that WJ13 reflects evidence a stronger continuation of arid zone occupation. As a result, a fluid development of the mobile pastoral way of life illuminates relationships between the desert and the sown.

### The Pixelated Shepherd: Identifying Detailed Local Land Use Practices at Late Neolithic Köşk Höyük (Central Anatolia) Using a Strontium Isotope ( $87\text{Sr}/86\text{Sr}$ ) "Isoscape"

**David C. Meiggs** (Rochester Institute of Technology, Rochester), **Benjamin S. Arbuckle** (University of North Carolina, Chapel Hill)

A key component in reconstructing the evolution of ancient pastoral management strategies and production systems is to trace geographical patterns in community grazing areas through time. Strontium isotopes ( $87\text{Sr}/86\text{Sr}$ ) provide an ideal proxy and have been successfully used to investigate prehistoric mobility in domestic livestock. And comparison of patterns in domestic species with 'natural' grazing areas of exploited wild fauna deepens our picture of human economic decisions and their environmental context. But previous work has been hampered by coarse resolution in regional geographic variation in bioavailable isotope values. We interpolated values of bioavailable  $87\text{Sr}/86\text{Sr}$  from a regional web of background samples surrounding Köşk Höyük (6200-4900 cal BC) to create a local 'isoscape' onto which we trace grazing areas for domestic ovicaprids and exploited wild equids. The results detail changes in local land use patterns consistent with shifting production priorities and differentiation in rights of access to grazing spaces. We will consider the implications of the data, and factors in the use of such 'isoscapes' to understand past human ecology and economy.

### Dynamic Pastoral Landscapes: Modeling Bronze Age Isoscapes in Central Asia

**Alicia Ventresca Miller** (Christian-Albrechts-Universität zu Kiel, Kiel)

Isotopic investigations of ancient materials often lack the robust isotopic baselines necessary for comparative analyses. A paucity of isotopic data for baseline ecology creates gaps in our knowledge and allows for multiple interpretations of prehistoric practices. This is especially true for Central Asia, where isotopic values have been used to consider long-distance human migrations without sufficient baselines. Therefore, the aim of this paper is to use an innovative approach in ecological modeling through the creation of comprehensive isotopic reference maps, or isoscapes, for two archaeological sites. Isoscapes simulate patterned variation in local environments by linking isotopic ratios of plant biomes and waterways through predictive modeling. Environmental differences (e.g. C3/C4 plant cover, elevation) are then linked to shifts in isotopic values. Comparative isoscapes were built using  $\delta^{18}\text{O}$ ,  $87\text{Sr}/86\text{Sr}$ ,  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  ratios of modern biosphere samples. These included spot testing of modern water, plant, and animal samples along transects in a 15km zone surrounding sites in northern Kazakhstan. To investigate subsistence and mobility, isoscapes were compared to isotopic ratios of prehistoric animal and human samples. Only through the compilation of robust baselines can we identify subtle variation in subsistence practices, herding strategies, and movement within the landscape.

### YEYLAQ: A Pilote Project on Transhumance in the South Caucasus

**Rémi Berthon** (Muséum national d'Histoire naturelle, Paris), **Marjan Mashkour** (CNRS/ Natural History Museum, Paris), **Shiva Sheikhi-Seno** (CNRS, Paris), **Emmanuel Baudouin** (CNRS, UMR 8167, Paris), **Michaël Thévenin**, **Karyne Debue** (CNRS, Paris), **Bertille Lyonnet** (CNRS UMR 7192, Paris), **Margareta Tengberg** (Muséum national d'Histoire naturelle, Paris), **Jean-Yves Monchambert** (Université Paris Sorbonne, Paris)

Transhumance is a traditional component of the South Caucasians pastoral systems. How far is this practice rooted in the past, is one of the questions investigated by the archaeologists of the region. Ancient societies had to adapt their lifestyle to the specific environmental settings of this area that combine aridity, important temperature amplitude, high and lowlands. Agro-pastoralism seems to be the pivotal of subsistence practices in this area since the 6th millennium BC. Our YEYLAQ project aims at building a modern isotopic reference based on mobile herds in Western Azerbaijan using stable isotopes of carbon and oxygen and, strontium isotopes. Serial tooth enamel sampling of sheep, goat, and cattle allows the

reconstruction of an animal's mobility cycle at the scale of at least one year. This modern isotopic reference will be used for interpreting similar isotopic data obtained from archaeological sites in Azerbaijan.

### **Bronze Age Pastoral Economies in Caucasia and Beyond – Models of Subsistence between the High Mountains and the Steppe**

**Corina Knipper** (Curt-Engelhorn-Centre Archaeometry Mannheim, Mannheim), **Sabine Reinhold** (Eurasia Department German Archaeological Institute, Berlin), **Kurt W. Alt** (Integrative Prehistory and Archaeological Science IPAS Univ. of Basel, Basel), **Svend Hansen** (Eurasia-Department German Archaeological Institute, Berlin), **Andrej B. Belinskij** (GUP Nasledie Stavropol, Stavropol)

Mobile pastoral economies are adaptations to environments with strong seasonal fluctuations of vegetation and climatic conditions. Caucasia, especially the northern flank of the High Caucasus with its piedmont area and the adjacent steppe allows for various kinds of mobile subsistence strategies on a larger or a micro scale. Vertical mountain economies with seasonal pastoralism (Almwirtschaft) are as likely as mountain nomadism or localised herding practices. In our contribution we want to highlight several possible scenarios of mobile pastoral economies and their relation to different landscapes. Which kind of mobility systems can be expected? Which patterns of isotope and anthropological data would support one or the other scenario? Is it possible to link specific archaeological cultures or epochs to specific mobile subsistence patterns? The presentation will summarize current hypotheses for economic strategies as well as mobile lifestyle and husbandry systems and evaluate them based on preliminary isotope data ( $^{87}\text{Sr}/^{86}\text{Sr}$ ,  $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$ ) from mountainous and steppe locations in southern Russia.

### **Finding the Herd: Isotopic and Zooarchaeological Perspectives on Faunal Remains**

**Hannah Chazin** (University of Chicago, Chicago)

This paper explores the benefits and difficulties of combining isotope analysis of faunal remains with other forms of zooarchaeological analysis in the context of studying pastoralist societies. The inferences drawn from traditional zooarchaeological analysis remain at the level of the population, as it is applied to data sets that are aggregates of many individuals. Generally, the patterns are a palimpsest of different processes and activities across varying amounts of time. Isotope analysis of teeth and bones, in contrast, provides information about specific biological individuals, allowing the construction of relatively detailed life histories. This raises the question about how to integrate such disparate forms of data. Zooarchaeological datasets provide information on a relatively macro scale and rely on large sample sizes to develop interpretations through large-scale patterning. In contrast, isotope analysis deals with specific individuals and (due to the expense and time involved) the sample sizes are much lower. This paper will discuss a pilot isotope analysis from faunal teeth from Late Bronze Age pastoralist sites in the South Caucasus, in the context of on-going zooarchaeological analyses of pastoralist production and consumption. The discussion will explore how to best integrate the different types of data produced by each method.

### **Isotopes and Archaeological Animals: The Case Study of Mobile Herding Economy of the Steppe and the North Caucasus Bronze Age Population**

**Natalia Shishlina** (State Historical Museum, Moscow)

Burials and settlements dating to the Bronze Age of the Steppe and North Caucasus contain a great number of bones of domesticated and wild animals, birds and fish. The study of the stable isotope composition in animal bones can contribute to the investigation of human and animal subsistence and mobility. Pasture and water dwelling animals may quickly respond to changes in the isotopic composition of exploited pastures, and may also fluctuate due to changes in climatic conditions. Bio-ecological studies of buried soils allow for the reconstruction of vegetation cover in pasture areas in the steppes and the North Caucasus. These data were compared with variations in stable nitrogen and carbon isotopes in the collagen of graminivorous animals from sites located in several geographical areas including the forest-steppe, steppe, and North Caucasus at different time intervals (4300-1500 cal. BC). The results enable us to suggest that some animals grazed on pastures with C3 plants, others grazed on pastures with C3 and C4 plants, and the third group grazed on pastures with predominantly C4 plants. This research identifies seasonal movements of mobile pastoralists of the Bronze Age within the steppe, between the forest-steppe and steppe zones, and between the steppe and the Caucasus.

### **Moving Past Mobility: Future Directions in Stable Isotopic Approaches to Pastoralism**

**Cheryl Makarewicz** (Christian Albrecht University, Kiel)

Stable isotopic analyses of animal and human remains have become an increasingly common component in the arsenal of analytical tools used to understand pastoralist behavior. Recent isotopic work has offered tremendous insights into previously invisible practices associated with pastoralism, in particular animal herding strategies and mobility, yet in this heady rush to define specific aspects of pastoralist lifeways, other equally important variables that shape pastoralist

decision-making are being left behind. This discussion draws in part from the isotopic approaches to pastoralism presented in this session, and critically examines -within an ecological and ethnographic framework- isotopic models frequently used to establish animal husbandry strategies employed by herders. In addition, this discussion seeks to move beyond subsistence and consider how stable isotope analysis can offer new perspectives into the complex social relations and political networks of herders.

## POSTER

### Adaptation of the $^{15}\text{N}$ Stable Isotope Analysis into Archaeobotanical Studies

**Meltem C. Üstünkaya** (The University of Queensland, St. Lucia), **Linda Barry** (ANSTO, Lucas Heights)

Nitrogen stable isotopes have mostly been used in archaeology to determine the diet of ancient peoples and to understand migration across the landscape. However, new studies show that application of this technique to plant materials can be helpful in understanding one agricultural management practice: manuring. It is known that ancient peoples adopted new agricultural practices in order to increase the production and manuring is a well-known technique that is utilised by farmers to increase the grain yield of agricultural fields in the modern world. Thus,  $^{15}\text{N}$  stable isotope analysis of plant materials is a useful technique that allows archaeobotanists to determine whether manuring practices were utilised by ancient farmers. This study aims to understand the diachronic changes in manuring practices at Kaman-Kalehöyük, Central Anatolia. Plant macro remains from Kaman-Kalehöyük were analysed to determine whether manuring practices were used at Kaman-Kalehöyük. Results indicated that manuring was an ongoing practice at Kaman-Kalehöyük starting from the Early Bronze Age and continued until the end of Iron Age period.



### T04S007 - HUMAN-ENVIRONMENT INTERFACES: ASSESSING THE USE OF PALAEOENVIRONMENTAL INFORMATION IN MEDITERRANEAN LANDSCAPE ARCHAEOLOGY

**Organizers:** **Kevin Walsh** (Dept of Archaeology, University of York, York), **Tony Brown** (Dept of Geography, University of Southampton, Southampton), **Tymon de Haas** (Dept of Archaeology, University of Groningen, Groningen)

The last ten years has seen an enormous increase in the amount of Mediterranean palaeoenvironmental data; including lake archives (pollen, chemical/elemental/isotope data), as well as terrestrial sedimentary archives. More often than not, the narratives produced by practitioners in these research specialisms are understandably limited in their engagement with detailed archaeological evidence. An obverse situation characterises “cultural” archaeology, where research is dominated by investigations of monuments and artefacts, or at best, landscape surveys that emphasise the waxing and waning of site numbers, employing these data as proxies for demographic variations. Few projects attempt a full integration of environmental evidence within frameworks that identify the “natural” world as an integral element in the construction and change of culture. In this session, we wish to consider both practical and theoretical frameworks for the enhanced integration of environmental and cultural datasets. The introductory paper will consider the interpretive frameworks (historical and cultural ecologies) that facilitate the integration of these varied data. This will be followed by contributions that deal with the full range of Mediterranean landscape-types, covering a wide range of related issues, dealing with broad scale climatic processes, down to individual landscape or site-based assessments of human-environment interaction.

## ORAL PRESENTATIONS

### Cycles of Mediterranean Landscape Metamorphosis: A Coupled Archaeological/Palaeoenvironmental Analysis from Cappadocia, Turkey

**Neil Roberts** (SoGEES Plymouth University, Plymouth), **Samantha L. Allcock** (Archaeology Group Bournemouth University, Dorset)

The circum-Mediterranean world has been transformed since the end of the last ice age by human agencies interacting synergistically with a dynamic environment, and involving multiple cycles of landscape metamorphosis. In this paper we combine data from systematic archaeological site surveys with palaeoenvironmental evidence from lake sediment cores to construct a regional synthesis of longue-durée landscape history in central Anatolia. Archaeological site surveys show that settlement dynamics in Cappadocia followed four main “long cycles”, with peaks in site numbers during the Neolithic, EBII to the LBA, mid-Iron Age to early Byzantine times, and Medieval times, of which the second and third maxima were most important. Demographic peaks were separated by shorter-lived phases of site abandonment and re-location. Sediment cores from two volcanic lakes provide evidence for changes in land cover (from pollen), climate (e.g. from stable isotopes) and catchment disturbance. Ultra-high resolution Itrax XRF core scanning from Nar lake shows an overall increase in detrital sediment flux during the Holocene, on which are superimposed peaks associated with periods of higher human settlement activity. Landscape transformation was therefore a process that was neither uni-directional nor monocausal.



## Space and Time Scales of Climatic and Cultural Changes in Cappadocia and Konya Plain (Turkey), from Neolithic to the Bronze and Iron Ages: Geographic Perspectives

**Catherine Kuzucuoğlu** (CNRS, Paris), **Lorenzo d'Alfonso** (University of Pavia and NY University-ISAW, Pavia), **Mihriban Özbaşaran** (Istanbul University, Istanbul), **Erhan Bıçakçı** (Istanbul University, Istanbul), **Ali Gürel** (Niğde University, Niğde), **Agnès Gauthier** (CNRS, Paris), **Vincent Robert** (CNRS, Paris)

In the context of the increasing and stimulating debate about the role of climate in human history, geographic sciences provide approaches, tools and results introducing many nuances within the debate which are to be taken into account at all scales from local to regional. These nuances evidence the necessity to enrich the debate beyond the sole comparison and evidences of parallelism between two entries (climate and civilizations). Indeed, the inter-relationships between climate and civilizations and the role of landscapes in recording their respective dynamics vary in time and space because of differences in their characteristics, level of complexity and mutual intermingling. In the frame of these remarks, this presentation will address questions raised by the upscaling of environmental and cultural data collected in stratigraphic contexts. The main objective will be to question the transfer of local to micro-regional, of micro-regional to regional, and of regional to global contexts. Such issues from central Turkey (Cappadocia, Konya plain) will be discussed from examples of environmental vs cultural changes at different locations and in different timings: the early Neolithic from the 9th to the 7th mill. BC on the northern slopes of the Hasan dag/Melendiz range; the 3rd to 1st mill. BC (Bronze and Iron Ages) on the southern slopes of the range.

## At the Local Level: A Millennium of Occupation and Land Use at Arslantepe (Malatya, Turkey) and Its Climatic Record

**Alessia Masi** (Sapienza University of Rome, Rome), **Laura Sadori** (Sapienza University of Rome, Rome), **Francesca Balossi Restelli** (Sapienza University of Rome, Rome)

Stable carbon analysis ( $\delta^{13}C$ ) were performed on charcoals and caryopses collected from five archaeological periods of Arslantepe spanning from the Late Chalcolithic 5 (3350 BCE) to the end of the Early Bronze Age (2000 BCE). The aim was evaluating both climatic signals preserved in woody plants and land use deduced from cereals. We compare  $^{13}C/^{12}C$  ratio of modern and fossil oaks and juniper in order to correlate the  $^{13}C$ -content to the environmental features of the Arslantepe area, today and during the 4th-3rd millennium BCE. Different plant macroremains (seeds and charcoals) from a single site with a reliable set of radiocarbon dates and covering about one millennium are compared to provide independent information about environmental signals and human agricultural practices. These data provide a first series of interesting observations but show how such tesserae of human/environment interactions are difficult to interpret in a univocal way and to frame within the same mosaic.

## Towards Integration of Different Kinds of Data in a Survey of Gebelein (Upper Egypt)

**Wojciech Ejsmond** (Antiquity of Southeastern Europe Research Centre, University of Warsaw, Warsaw), **Julia M. Chyla** (UniGIS Jagiellonian University, Krakow), **Cezary Baka** (Polish Centre of Mediterranean Archaeology, Warsaw), **Dawid F. Wieczorek** (Institute of Mediterranean and Oriental Cultures, Polish Academy of Sciences, Warsaw), **Piotr Witkowski** (Free lance, Warsaw)

Gebelein is a site complex located c. 28 km south-west from Luxor. All periods of Egyptian history are represented there, as well as nearly all kinds of archaeological sites, which could be found in Egypt. Gebelein played an important role in the history of ancient Egypt. In the Predynastic Period people of very high social status, e.g. rulers of local proto-state, were buried at local necropolises. In following periods there was a local administrative and trade center, inhabited by different ethnic groups. Recent development of agriculture and expansion of settlements caused great threat to the site complex. Therefore it is necessary to document still preserved remains. The research have been initiated by a short field reconnaissance in April 2013. The next phase of the project was held in winter 2014 when epigraphic and archaeological surveys have been conducted. All the data: information gained during the field work, archival maps, aerial and satellite images, as well as ancient Egyptian written sources, were stored in GIS. As the result of subsequent analysis a jigsaw of the data had been established. At this basis several hypothesis can be funded, concerning e.g. environmental changes and settlement patterns.

## Wings of Change - Fossil Insects and Mediterranean Palaeoenvironments

**Eva Panagiotakopulu** (University of Edinburgh, Edinburgh), **Anaya Sarpaki** (University of Athens, Athens), **C. Doumas** (University of Athens, Athens), **G. Hourmouziadis** (University of Athens, Athens), **P. Buckland** (University of Edinburgh, Edinburgh)

Although the discussion about the spread of farming have concentrated on palaeobotanical results in the Aegean, new insect research from the Neolithic site of Dispilio, includes the introduction of insect pests of storage in the middle Neolithic, around 5500 BC. The implications of the early introductions of grain pests in the area are discussed. By the Late Bronze age



the Aegean had become a modified landscape and the insect finds testify links networks of exchange and exotic imports. One of the best examples from this period comes from the settlement of Akrotiri, on Santorini, where the volcanic eruption has preserved the site under the tephra, including a plethora of organic remains. The insect results from the site provide detailed information about its last moments and evidence for the development of the fauna from the Early Cycladic to the last phase of the site. In addition to biogeographic information, and data pointing to environmental change, the palaeoentomological results place the volcanic eruption during early to mid-summer. These results in the broader context of the Mediterranean provide a better understanding of change, both environmental and human and highlight the dynamic nature of Aegean interconnections.

### **Holocene Vegetation, Fire History and Land-Use of Kournas Lake, Crete**

**Tiziana Pedrotta** (Oeschger Centre for Climate Change Research & Institute of Plant Sciences, University of Bern, Bern), **Isabelle Jouffroy-Bapicot** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besançon), **Guillaume Meunier** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besançon), **Michel Magny** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besançon), **Boris Vanni re** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besan on)

This paper deals with Holocene vegetation history of Lake Kournas (north-western Crete, Greece). Knowledge about the whole Holocene vegetation history of the Island remains scarce. The multidisciplinary approach performed, based on 14 meters long new sequence, includes paleoecological analyses (pollen, spores, palynomorphs, microcharcoal) and covers the past 12,000 years. First results underline a human dominated Holocene environment, with presence of *Cerealia*-type pollen and spores of dung fungi (husbandry indicators) pointing to agro-pastoral activities. After 9500 cal yr BP an increase in deciduous oak is registered, followed by a landscape opening (8100 cal yr BP) with the appearance of maquis elements. From 5800 cal yr BP onward, an increment of *Olea* pollen may indicate the beginning of local olive cultivations. Impact of Minoan civilization over local vegetation is recorded, and has probably played a key-role both for the exploitation and later the abandonment of the Cretan landscape. During the Greek period, land use (olive cultivation, crops and breeding) arises and is rather continuous until the last decades, only interrupted from the Xth to XIth c. (Arab and 2nd Byzantine periods) with an increase in Mediterranean forest. These reconstructions, based on pollen and regional fire variations, underline the importance of human impact and its role in shaping local ecosystems.

### **Neoglacial and Land Use Impact on Flood Frequency and Soil Erosion Increase in the Eastern Mediterranean during the Mid- to Late-Holocene Transition**

**Boris Vanni re** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besan on), **Guillaume Meunier** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besan on), **Tiziana Pedrotta** (Oeschger Centre for Climate Change Research & Institute of Plant Sciences, University of Bern, Bern), **Isabelle Jouffroy-Bapicot** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besan on), **P. Sabatier**, **Michel Magny** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besan on)

This paper presents a paleolimnology study of Lake Kournas (Crete) to establish sediment accumulation rate (SAR) and flood frequency (FF) Holocene records. Results show that FF starts to increase ca. 7000 cal BP and intensify ca. 4500 cal BP. This matches with FF reconstruction from the northern Mediterranean and with the aridification processed observed in the southern part of the basin. This implies that autumn storm-tracks, which characterize the Mediterranean climate seasonality today, took place during the mid-Holocene at the time of the Neoglacial onset. While climate might be the main driver of the geomorphic system during the mid-Holocene, at some point human impact became widespread and contributes to sediment dynamics to a large extent. At Lake Kournas, this is recorded by the exceptional increase of SAR between 2700 and 2000 cal BP. This could be the consequence of land abandonment and slope gradient change, which are key factors of soil erosion in Mediterranean terraced lands. From the Byzantine Period onward, there is a decrease both in FF and SAR. At this time, soil properties seem to play an important role, as the hillslope soil reservoir in the Eastern Mediterranean was progressively depleted during the late Holocene.

### **Environment and Subsistence: The Geosphere, Ecosphere and Human Interaction**

**Kevin Walsh** (Department of Archaeology, University of York, York), **Antony G. Brown** (Department of Geography, University of Southampton, Southampton), **Ben Gourley** (University of York, York)

This paper presents the results of excavations of the city of Stymphalos and environmental studies on the floor of the Stymphalos polje in order to examine the role of both the lake and springs in the history of the classical city. Associated with Artemis and famed for Herakles sixth labour (killing of the Stymphalean birds) the city has a rich mythology. Whilst this narrative has been associated solely with the lake it is argued here that this geom mythology was part of the cities rela-

tionship to environmental unpredictability and the relationship between water supply and water loss. Seen in this context the construction of the Fountain-house well above the contemporary lake-shore is symbolic of the importance of springs to the foundation and sustainability of the classical city during both the Greek and Roman Periods. Through these analyses we seek to illustrate the complimentary, but complex nature of archaeological, hydrogeological and palaeoenvironmental data that intersect in the mythological landscapes of Mediterranean antiquity.

### **When Geoarchaeology Met Bioarchaeology in Pieria, Macedonia, Greece**

**Athanasia Krahtopoulou** (24th Ephorate of Prehistoric and Classical Antiquities Hellenic Ministry of Culture and Sports, Lárissa), **Rena Veropoulidou** (Museum of Byzantine Culture Hellenic Ministry of Culture and Sports, Lárissa)

The paper discusses how understanding and interpretation of the cultural record may benefit from an integrated geoarchaeological and bioarchaeological approach. Recent geoarchaeological work in inland Pieria indicated that erosion and alluvial deposition largely shaped the landscape and the archaeological record of the region. Fresh stratigraphic, sedimentological, pedological, macro- and micro-fossil evidence (snails, shells, ostracods and foraminifera), as well as radiocarbon dating, shows that the coastal zone of Pieria preserves a long record of sea level change. Combination of inland and coastal records enhances our understanding of landscape change in the area and provides a greater time depth to the discussion of landscape evolution in central Macedonia. Such landscape changes have major implications for understanding settlement patterns and land use history in the area, as well as environmental context of prehistoric sites at the time of occupation. Moreover, distribution and use of terrestrial and more particularly aquatic resources in nearby archaeological sites reflects a complex environmental-cultural interaction, thus underlining that the natural world was an integral element in the construction and change of culture.

### **Beyond Determinism: For a Local Approach to Nature/Society Interactions in the Southern Balkans at the Transition from the Neolithic to the Bronze Age**

**Laurent Lespez** (University of Paris East Creteil-UPEC, Paris), **Arthur Glais** (University of Caen, LETG CAEN UMR 6554 CNRS, Caen), **José-Antonio López Sáez** (CSIC, Madrid), **Yann Le Drezen** (UMR PRODIG, Paris), **Robert Davidson** (University of Caen, LETG CAEN UMR 6554 CNRS, Caen), **Zoi Tsirtsoni** (Protohistoire Égéeenne – Arscan UMR CNRS, Nanterre)

Over the last twenty years, the scientific literature is marked by the resurgence in publications linking cultural transformation with changes in environmental conditions. Operating arguments emphasize the decisive role of changes in biophysical factors in the emergence or decline of certain societies. These arguments are in accordance with some determinist arguments that give a crucial role to more or less favorable qualities attributed to certain geographic areas to understand the spatial organization of societies. Recently obtained data in Greece for the Holocene enables study of arguments that attribute a determining role to geographic conditions. In this article, we focus more specifically on the consequences of environmental changes on societies by comparing the hypotheses proposed by some researchers working in the southern Balkans with data acquired in northern Greece. Palaeoenvironmental and geoarchaeological research shows the reality but also the complexity of social and environmental changes occurring at the Neolithic-Bronze Age transition. It implies the necessity to understand precisely the environmental transformations near the settlements and their potential interactions with the local inhabitants, before estimating their consequence for populations on a regional scale.

### **The Environment in the Proximity of the Eneolithic Pile-Dwelling Site of Stare Gmajne (Slovenia): Archaeozoology, Archaeology, Archaeobotany and Palynology**

**Borut Toškan** (Institute of Archaeology of the Research centre SAZU, Ljubljana), **Maja Andrič** (Institute of Archaeology of the Research centre SAZU, Ljubljana), **Franci Janžekovič** (Institute of Archaeology of the Research centre SAZU, Ljubljana), **Tjaša Tolar** (Institute of Archaeology of the Research centre SAZU, Ljubljana), **Anton Velušček** (Institute of Archaeology of the Research centre SAZU, Ljubljana)

Zooarchaeology, archaeobotany, palaeoanthracology and palynology can be of great help to archaeology in understanding both large and small scale climatic changes. Nevertheless, the conservation of organic material poses many problems in this regard. As the environmental conditions on waterlogged sites differ from those on dry sites, material has often been preserved much better. Thanks to this the excavations of the Stare gmajne pile-dwelling settlement (Ljubljansko barje, Slovenia; 4th Millennium BC) provided a good opportunity to obtain deeper insights into the human-environment interaction at the site. Apart from the rich assemblage of archaeological finds, the remains of mammals, birds, reptiles and amphibians have been taken into account as well as archaeobotanical and palynological insights. Special regard has been dedicated to the rich small mammal assemblage, both in the way of species identification and in the way of taphonomic analysis. The latter indicated tawny owl (*Strix aluco*) as the main factor of accumulation of these remnants. Consequently, its ecological preferences have been considered as an independent “ecofact” to better understand the environment in the close proximity of the settlement.

## North-South Palaeohydrological Contrasts in the Central Mediterranean during the Holocene: Tentative Synthesis and Working Hypotheses

**Michel Magny** (CNRS UMR Chrono-Environnement, Besançon), **LAMA Members**

On the basis of a multi-proxy approach and a strategy combining lacustrine and marine records along a north-south transect, data collected in the Central Mediterranean within the framework of a collaborative project have led to reconstruction of high-resolution and well-dated palaeohydrological records and to assessment of their spatial and temporal coherency. Contrasting patterns of palaeohydrological changes have been evidenced in the Central Mediterranean: south (north) of around 40°N of latitude, the middle part of the Holocene was characterised by lake-level maxima (minima), during an interval dated to ca 10300-4500 cal BP to the south and 9000-4500 cal BP to the north. Data give evidence that these contrasting palaeohydrological patterns operated throughout the Holocene, both on millennial and centennial scales. Comparison between available palaeohydrological data for the whole Mediterranean suggest possible influences of forcing factors and general atmospheric circulation patterns. Reference : M. Magny et al. North-south palaeohydrological contrasts in the central Mediterranean during the Holocene: tentative synthesis and working hypotheses *Climate of the Past*, 9, 2043-2071, 2013.

## Neandertal Niches on the Eastern Edge of the Great Adriatic Plain

**Rajna Šošić Klindžić** (University of Zagreb Faculty of Humanities and Social Sciences, Zagreb), **Ivor Karavanić** (University of Zagreb Faculty of Humanities and Social Sciences, Zagreb), **Nikola Vukosavljević** (University of Zagreb Faculty of Humanities and Social Sciences, Zagreb)

During the late Pleistocene present day Eastern Adriatic coast was eastern ridge of the Great Adriatic Plain. It was dry area close to the mountain ridges of Dinara and Velebit with probably significant influence of the glaciation from the peaks. In that area so far we have established 3 niches which Neanderthals inhabited – present day Istria on the northern part and Ravni kotari and Kaštela area in Dalmatia. The latter two areas will be the subject of this presentation. There are several possible scenarios why Neanderthals chose these particular areas. Geographical and geological conditions were probably important factors because these areas represent large open flat spaces uncommon in the region, very abundant with the raw material. Proximity of Dinara and Velebit also encourages us to try to observe possible paths Neanderthals could have used to cross the mountains. We will present archaeological, zooarchaeological, palaeoecological and geological data and try to establish role that these small regions and their environmental and geological particularities could have played in the lives of late Neanderthals on the Eastern Adriatic Coast.

## Evaluating the Environmental Impact of Human Activities and Climate Change during the Late Glacial and Holocene in the Northern Apennines, Italy: Archaeological and Palaeoenvironmental Perspectives

**Nicholas P. Branch** (Department of Geography and Environmental Science University of Reading, Reading), **Stuart Black** (Department of Archaeology University of Reading, Reading), **Roberto Maggi** (Università di Genova, Genova), **Lionello Morandi** (Department of Archaeology University of Reading, Reading), **Katy Turner** (Department of Archaeology University of Reading, Reading)

The paper presents new information on Late Glacial and Holocene human-environment interactions in the northern Apennines, Italy. The paper begins by integrating archaeological, environmental archaeological and palaeoenvironmental data from a range of archives (caves, open-air sites, mines, lakes and bogs) and discusses the significance of key climatic, economic and technological changes as agents of landscape and environmental change. The paper then focuses on two key sites as case studies, Lago Riane (Liguria) and Prato Spilla (Emilia-Romagna), to illustrate the strengths and weakness of palaeoenvironmental data for reconstructing the impact of climate change and human activities on the environment, with a specific emphasis on key transitions during the Neolithic (~7800-5700 cal BP) and Copper/Bronze Age (~5700-2800 cal BP). The paper highlights the importance of: (1) improving geochronological frameworks in the northern Apennines for integrating archaeological and geological datasets, including the application of tephrochronology, and (2) the new application of non-pollen palynomorph analysis in the northern Apennines from archaeological and geological stratigraphy for identifying and characterising animal husbandry practices.

## Sustainability of Mediterranean Landscapes in Antiquity

**Peter Attema** (University of Groningen, Groningen)

Environmental research of ancient landscapes in the coastal plains, river valleys and uplands of Central and South Italy shows how erosion and sedimentation studies play a significant role in the evaluation of the archaeological record at the regional and local scales. While we are accustomed to study such processes as post-depositional - exposing or covering up protohistoric and classical archaeological remains (long) after regions or sites were abandoned - we may also study such processes from a contemporary perspective. How did erosion and sedimentation actually affect the sustainability of the human environments of sites and regions while they were settled? Drawing on case studies from landscape archaeological

and excavation projects of the Groningen Institute of Archaeology I will approach Mediterranean erosion and sedimentation history in South and Central Italy above all from the latter dynamic perspective. Where possible I will go into possible causal factors in light of available data.

### **Man-Environment Interaction and Wetland Exploitation in Roman Italy**

**Tymon de Haas** (University of Groningen, Groningen)

Scholarship on wetland exploitation in Roman Italy is often concerned with large-scale, state-managed projects as represented by centuriation schemes. While such work is not necessarily confined to the management aspects of these schemes (it also acknowledges their importance for issues such as drainage and transport), they are not often studied in conjunction with environmental, historical and archaeological data to understand how people lived in and interacted with wetland environments, and how such interaction changed over time. Using a case study (the Pontine Marshes, central Italy), this paper illustrates the potential of such an integrated approach for a better understanding of the ways in which Roman institutions, elites and peasants engaged with and exploited wetlands.

### **Water Matters. Geoarchaeology of the City of Adria and Palaeohydrographic Variations of the Po River**

**Elisa Corrà** (Dept of Humanistic Studies, Medieval Archaeology Lab, University of Venice, Venice), **Paolo Mozzi** (Dept of Geosciences, University of Padua, Padova)

The paper concerns the geoarchaeological study of the city of Adria, through the evolution of landscape between Late Roman Age and Early Middle Ages. Located on the edge of Venetian Lagoon, nearby the city of Ravenna, this area is interesting for both palaeohydrographic variations of the Po River and human activities. Archaeological data indicate a decreasing number of settlements and cultural change during Early Medieval Ages, as well as a spatial reorganization of the city. Moreover, geological data revealed changes in the fluvial network that have deeply modified environmental conditions, landscape and way of living. Thus, this paper is focused on the interaction between human and environment. Few archaeological data are available from Early Medieval levels, due to their depth of burial. Nevertheless, the archaeological framework has been put in relation with alluvial stratigraphy, resulting in a better understanding of the palaeoenvironmental evolution of the area and site forming processes.

### **New Perspectives on the Genesis of Trajanic Portus through the Integration of Palaeo-Environmental and Archaeological Data**

**Simon Keay** (University of Southampton, Southampton), **Graeme Earl** (University of Southampton, Southampton), **Ferreol Salomon** (University of Southampton, Southampton), **Jean-Philippe Goiran** (Maison de l'Orient et de la Mediterranee-Lyon 2, CNRS, Lyon)

Portus, the maritime port of Imperial Rome, was an artificial port that was initially established in a dunal environment to the north of the Tiber mouth under Claudius. It was then significantly enlarged under Trajan, and then continued in intensive use down until the 6th century AD. Since 2007, the Portus Project has been investigating a suite of key buildings on a narrow isthmus of land between the Claudian and Trajanic basins, focusing upon changes in the development and function and uncovering a sequence the dates between the mid 1st and mid 6th centuries AD. The approach has been interdisciplinary in scope, drawing in particular upon archaeological geophysics, excavation and geo-archaeology, within a digital strategy that makes it possible to integrate the results from these different approaches. This paper, therefore, presents a first attempt at visualizing the relationships between the sedimentary sequences of the Claudian and Trajanic basins and the structural remains thereof, clarifying relationships in a way not otherwise possible.

### **Environmental Archaeology of Neolithization in the Iberian Peninsula. Archaeopalynology in Lake Banyoles and La Draga Site (Girona, Spain)**

**Jordi Revelles** (Universitat Autònoma de Barcelona, Barcelona), **Francesc Burjachs** (Universitat Rovira i Virgili, Tarragona), **Raquel Piqué** (Universitat Autònoma de Barcelona, Barcelona)

The Neolithization process supposes a significant change in the relationship between society and nature. The vegetal and animal domestication processes consisted of a change in the way that human communities and environment were related, beginning a greater control of nature. In that context, the study of the several geosystem changes that occurred at the onset of the Holocene takes a decisive role, being essential the integration of environmental analysis to the investigation of the origin of farming societies. Pollen analysis represents an important analytical tool to approach the relationship between past societies and the environment, not only for the vegetation reconstruction, but to explain the historical reality involved in this relationship, integrating palaeoecological and archaeological research. An environmental archaeology project is being carried out in Banyoles (Girona), where first farming societies settled in the lakeshore of Lake Banyoles in the dwelling site of La Draga (7250-6950 cal BP). The situation of the site beneath the water table furnishes an

exceptional conservation of organic matter that allows us to develop an integrated palaeoecological and archaeological project, comparing pollen record from the archeological levels with pollen record from the lake and the peat deposits in the lake surroundings.

### **Socio-Ecological Dynamics in Mediterranean Wetlands during the 1st millennium AD. The Case Study of Les Arenes Floodplain (Tortosa, NE Spain)**

**Arnald Puy** (Universität zu Köln, Köln), **Andrea L. Balbo** (Spanish National Research Council-CSIC, Madrid)

Mediterranean wetlands are a valuable source to study past socio-ecological dynamics due to its long history of anthropisation and sensitivity to climatic shifts. The integration of geoarchaeological datasets and historical records may provide highly detailed information on the interplay between humans and climate and its effects on wetlands during the last 2000 years. Within this methodological framework we will discuss how major climatic trends (Iberian-Roman Humid Period, c. 650 BC-450 AD; Dark Ages Humid Period, c. AD 500-800; Medieval Climate Anomaly, AD 900-1200) intertwined with the human factor to shape the evolution of several Spanish and Mediterranean wetlands during the 1st millennium AD. We will specially draw on geoarchaeological and historical data collected from Les Arenes floodplain (Tortosa, NE Spain), a wetland fully dry to date but only partially drained in written records issued shortly after the feudal conquest of Tortosa (AD 1148, Second Crusade). Our contribution will also stress the potential of several geoarchaeological techniques for the study of past socio-ecological dynamics in wetlands (bulk analyses, environmental magnetism, soil micromorphology), highlighting their drawbacks and limitations as well.

## **POSTERS**

### **Collecting the Palaeoenvironmental Data: Preliminary Results on Prehistoric Sicily Comparing Archaeobotanical and Pollen Analysis**

**Claudia Speciale** (University of Salento, Lecce), **Cosimo D'Oronzo** (University of Salento, Lecce), **Maria Clara Martinelli** (Regional Board of the Archaeological Park of Aeolian Islands, Archaeological Museum L. Bernabò Brea, Lipari, Messina), **Girolamo Fiorentino** (University of Salento, Lecce)

In this poster, archaeobotanical and palynological data from Sicily (Italy) are collected for the first time, in order to put together palaeoenvironmental information available from Paleolithic to Iron Age. Sicily represents a central area in the Mediterranean, both in a geographical and cultural sense. Unfortunately, botanical studies from archaeological contexts are very limited in Sicily -even for the historical phases- and centered on some «hotspots» such as Aeolian Islands and North-Eastern Sicily for the Bronze Age and Western Sicily for the Iron Age. Nevertheless, good and more complete results have been lately obtained through lacustrine sediments analysis all over the island - in particular, Central and Southern Sicily, both inner and coastal lake deposits. The main aim is to give a preliminary reliable framework about prehistoric landscape in the island and in the archipelagos around Sicily; the relation between human and environmental development will be analyzed, as to define if and how cultural short-term and long-term dynamics were affected by climate changes, trying to set the results into the bigger Mediterranean picture.

### **Water Supply, Mediterranean Forest and Pastoral Activities: 2000 years of Resources Exploitation in the White Mountains of Crete**

**Isabelle Jouffroy-Bapicot** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besançon), **Guillaume Meunier** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besançon), **Michel Magny** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besançon), **Boris Vannière** (CNRS-UMR 6249, Laboratoire Chrono-Environnement, UFR des Sciences et Techniques, Besançon)

The site of Asi Gonia, located in the White Mountains, is the only peat bog of Crete. A six meters-depth peat core was performed recently in this site, formerly analyzed for pollen and micro-charcoal by Atherdeen & Hall (1999, Holocene). The new sequence is longer than the previous one and spans a longer time interval. While the high resolution analysis of the whole core for pollen, NPPs, micro- and macro-charcoal is still in process, this poster set out first results based on selected samples, and on sediments analysis. Firstly, they shed a new light on the initial phase of the peat deposit which could be related to human arrangement in the watershed, and/or water management in this springs area. Then, these data document environmental changes in this part of the Mediterranean basin. The evolution of the peat deposit and its surrounding landscape clearly point a major influence of human activities. Locally, different phases of pastoral pressure on the peat bogs' watershed are obvious from the Roman time to Present. The globally growing pressure until the end of the 10th century have led to the evolution of this mountainous area of Crete from Mediterranean forest to maquis, and then to the present day phrygana/steppe landscape.





## **T04S008 - SOUTHWEST ASIAN DOMESTIC ANIMALS AND PLANTS IN AFRICA: ROUTES, TIMING AND CULTURAL IMPLICATIONS (Session sponsored by the Society of Africanist Archaeologists)**

**Organizers:** **Elena A.A. Garcea** (University of Cassino and Southern Latium, Department of Letters and Philosophy, Cassino), **Necmi Karul** (Istanbul University, Faculty of Letters, Department of Prehistory, Istanbul)

Some domestic animals (e.g., caprines) and plants (e.g., wheat and barley) in Africa had no local wild ancestors and were imported from Southwest Asia from the 6th millennium BC. They were introduced into African communities who successfully domesticated their endemic wild species (e.g., aurochs, sorghum and pearl millet). Data considerably increased recently and new research techniques enhanced our knowledge on animal and plant domestication. Nonetheless, fundamental issues on the routes, timing and cultural implications of the spread of Southwest Asian domesticates into Africa still need to be addressed. Was the southern Levant the only region involved in the diffusion of domesticates into Africa? What role had navigation in the Mediterranean Neolithic? Was it a gradual spread or a multi-stage dispersal? What were the cultural implications of these encounters and/or acculturations? What degree of mobility and type of social organization had Southwest Asian communities in the 7th millennium BC? This session aims at bringing together archaeologists, archaeozoologists, and archaeobotanists working in these two adjacent, but often isolated continents, and at offering a forum to share their perspectives and results. We wish to explore the patterns and particularities of these interactions in order to (re)examine and revise our understanding of this spread.

### **ORAL PRESENTATIONS**

#### **Two Different Models of Neolithic Expansion: Southeast Europe and North Africa**

**Necmi Karul** (Istanbul University, Faculty of Letters, Department of Prehistory, Istanbul), **Özlem Aytek** (Pamukkale University, Denizli)

The debates about the expansion of Neolithic way of life have not lost their popularity almost a century. However, the framework and the content of the debates have changed repeatedly with the increasing knowledge of the form, route and timing of the expansion, and with the new methods. The problem of the transmission of the features assumed to have been originated from Southwestern Asia, which is traced in African Neolithic, to this region, is doubtlessly connected in a sense with the dispersal, spread from the Southwestern Asia to different regions. Thus, we can suggest that the comparison between Southwest Europe, where Neolithic was transferred as complete life of way, and the models of North Africa, where only some components were transferred, can contribute to concretize the problems discussed in this session.

#### **A Review of the Archaeozoological Evidence for Early Stock Keeping in Egypt**

**Veerle Linseele** (FWO-Flanders, KU Leuven and Royal Belgian Institute for Natural Sciences, Brussels)

Well known to Africanist archaeologists, the earliest possible evidence for stock keeping within the borders of modern Egypt are the very controversial domesticated cattle bones from the 9th/8th millennium BC in the Nabta Playa-Bir Kiseiba area. In the 6th millennium BC more secure evidence for domesticated cattle appears there, together with ovicaprine remains. The earliest archaeozoological evidence for livestock elsewhere in the Egyptian deserts also dates to the 6th millennium BC. At sites of this period, numbers of bones are generally extremely low and usually only ovicaprines are present. Emphasising the poor amounts of physical evidence for the early phases of stock keeping will be a major point of the paper. Only from the 5th millennium BC, numbers of sites with domesticated animals dramatically increase, appearing also in the Nile Valley. Pigs are added to the faunal spectra and domesticated animals are now usually represented by significant quantities of bones. It is probably no coincidence that cultivated crops appear in the archaeological record at the same time. In general, the evidence for early stock keeping shows large regional variation in Egypt and seems to be mainly dependent on local environmental conditions.

#### **Multi-Stage Dispersal of Southwest Asian Domestic Livestock and the Path of Pastoralism in the Middle Nile Valley**

**Elena A. A. Garcea** (University of Cassino and Southern Latium, Department of Letters and Philosophy, Cassino)

Domestic livestock reached the Middle Nile Valley, the stretch of the river with outcropping cataracts in Sudan's territory, as fully domesticated breeds from Southwest Asia at about 5000 BC, whereas imported domestic plants started to be cultivated since the third millennium BC. Thus, herding was the only form of food production that Middle Nilotic populations relied on for a long time. When domestic livestock reached this region, which is some 1,500 km upstream of the Nile, their domestication process had long been accomplished elsewhere. As the slow and gradual process of wild animal taming did not regard these populations, the shift from foraging to the adoption of food production could have – theoretically and technically – been immediate. In fact, some early Pastoral Neolithic sites in Sudan have been interpreted as the evidence of



such an abrupt change, indicating an almost total replacement of previous wild species by domestic livestock in the faunal composition of subsistence economies. However, new radiocarbon dates, archaeozoological evidence, and investigations on Pre-Pastoral and Pastoral settlement systems have shown that, even in this region, the switch from foraging to pastoralism was a slow and gradual multi-stage event, rather than a geographically progressing, systematic diffusion.

### **Of Domestic Livestock, Nomadism and Complex Societies in the Upper Nile Valley**

**Isabella Caneva** (Università del Salento, Lecce)

While agriculture is generally recognised as a substantial economic basis on which complex societies were constructed, nomadic pastoralism is rather considered to have been an obstacle to such a social development. In the case of the Nile valley, however, the neat and well-balanced ecological separation between areas with high agricultural potentials and others only suitable for pastoralism, made the respective societies equally necessary, and their relationships at the same time symbiotic and in conflict. The Sudanese archaeological documentation suggests that the pervasive introduction of domestic livestock in the Nile valley had a significant role in the development of a cultural and behavioural homology over a vast adjacent territory. The impact of this network of mobile groups on the agricultural communities of the lower Nile valley is supposed to have accelerated the development of organised social systems based on the intensification of exchanges and the centralisation of specialised productions, leading to the development of the early élites.

### **Agricultural Niche Construction in Neolithic Egypt: A View from Lithic Study**

**Noriyuki Shirai** (University College London, London)

The questions about when and how the diffusion of Levantine domesticates to Egypt took place cannot be answered as long as one relies on archaeobotanical and zooarchaeological data alone, because this event is not merely the migration of domesticated plants and animals but also the cultural transmission of the know-how of crop farming and livestock keeping. Lithic evidence suggests that the know-how of shrub clearing and crop harvesting by using particular types of stone tools was certainly transmitted to Egypt from the Mediterranean coastal region of the southern Levant in the early 6th millennium BC. On the other hand, lithic evidence also suggests that the inhabitants of Egypt had to protect farmland and livestock from local predators by developing new weapons, with which no comparable weapons are known in the Levant. From a viewpoint of lithic study, it can be argued that the beginning of crop farming and livestock keeping in Egypt was definitely the construction of an ecological niche suitable for Levantine domesticates by means of lithic technology.

### **The Breakdown of the Near Eastern Crop Assemblage in Northeastern Africa and the Role of Indigenous Domesticates: Archaeobotanical Evidence from Ethiopia and Nubia**

**Dorian Q. Fuller** (Institute of Archaeology, University College London, London), **Leilani Lucas** (Institute of Archaeology, University College London, London)

Both the Ethiopian Plateau and the Nile Valley have traditional cropping of Fertile Crescent winter crops, wheats, barley and pulses, but both regions also have traditions of summer cropping species domesticated within Africa, such as sorghum, African millets and hyacinth bean. In some global syntheses of agricultural origins the domestication of African crops is attributed to the influence of introduced cultivation from the Near East, while in others it is assumed that African crops were independent. It has been unclear whether or not to attribute the spread of Near Eastern crops into Africa as a single process (single route). This paper will explore the current state of empirical archaeobotanical evidence in Nubia and Ethiopia. In both regions the earliest documented domesticated crops are of Near Eastern origin, although evidence from the Kasala region suggests primary sorghum exploitation in the absence of wheat/barley cultivation. Even in southern Ethiopia (Gamo highlands) there is limited evidence to suggest that Near Eastern cereals preceded the local adoption of African crops. Also, evidence shows a reduction in the diversity of the Near Eastern crop package. Current evidence also supports two separate dispersal processes of Near Eastern crops into Africa, one via the Nile delta and upstream to Nubia, and the other to Yemen and then across Ethiopia.

### **Early Evidence for the Exploitation of Wild and Domesticated Plant Resources in Neolithic Sudan**

**Welmoed A. Out** (Graduate School Human Development in Landscapes / Institut für Ur- und Frühgeschichte, Christian-Albrechts-Universität zu Kiel, Kiel), **Juan José García-Granero** (ICREA/CaSEs, Universitat Pompeu Fabra and IMF-CSIC, Barcelona), **Marco Madella** (ICREA/CaSEs, Universitat Pompeu Fabra and IMF-CSIC, Barcelona), **Philippa Ryan** (Department of Conservation and Scientific Research, The British Museum / Institute of Archaeology, UCL, London), **Donatella Usai** (Centro Studi Sudanese e Sub-Sahariani, Treviso)

The introduction of domestic Near Eastern cereals from Southwest Asia into Africa is still poorly understood. Early finds of wheat and barley are available from the Fayum in Egypt but contemporaneous other finds from Africa are scarce. Two Neolithic sites in Sudan provide new, early evidence on the introduction of wheat and barley. This concerns the Early Neolithic site Ghaba in Central Sudan (directed by the *Section Française de la Direction des Antiquités du Soudan*) and

the Middle Neolithic site R12 in Nubia. While plant macroremains are scarce at these sites, phytolith samples from grave goods in burials and plant microremains from dental calculus provide information about the exploitation of both wild and domesticated grasses, amongst other plants. Together with already published data, the finds of wheat and barley show a growing body of evidence for arable farming in prehistoric Nubia, thus contributing to the understanding of neolithisation in this part of Africa.

### Origins and Spread of Agriculture in Morocco: The Plant Evidences

**Leonor Peña-Chocarro** (Escuela Española de Historia y Arqueología en Roma-CSIC, Rome), **Jacob Morales** (GI Arqueobiología, Centro de Ciencias Humanas y Sociales-CSIC, Madrid), **Guillem Pérez-Jordà** (Centro de Ciencias Humanas y Sociales-CSIC, Madrid), **Lydia Zapata** (Depto. Geografía, Historia y Arqueología. Universidad del País Vasco, Vitoria), **Youssef Bokbot** (Institut National des Sciences de l'Archéologie et du Patrimoine-INSAP, Rabat Instituts, Rabat), **Juan Carlos Vera-Rodríguez** (Depto de Historia 1. Facultad Humanidades. Universidad de Huelva, Huelva), **Jörg Linstädter** (Institute of Prehistoric Archaeology, University of Cologne, Cologne)

Three Neolithic sites from Northern Morocco, Ifri Oudadane, Khil and Kaf Taht El-Ghar, have been studied as part of the AGRWESTMED (ERC) project on the origins and spread of agriculture in the Western Mediterranean. The systematic recovery and flotation of sediments in these three sites has provided a broad assemblage of seed and pollen remains of domestic plants (both cereals and pulses) of Southwest Asian origin since Early Neolithic levels. The plants that have been identified are: free threshing wheat (*Triticum aestivum/durum*), hard wheat (*T. durum*), einkorn (*T. monococcum*), emmer (*T. dicoccum*), naked barley (*Hordeum vulgare* var. *nudum*), hulled barley (*Hordeum vulgare* subsp. *vulgare*), broad bean (*Vicia faba*), lentil (*Lens culinaris*), pea (*Pisum sativum*) and grass pea (*Lathyrus* sp.). A set of radiocarbon dates on those seeds has allowed confirming the onset of agriculture in this region since at least the second half of the 6th millennium cal BC. There are strong similarities with the Iberian Peninsula in both radiocarbon dates on seeds and the range of cultivated plants identified suggesting that both areas were probably part of the same process of agriculture spread.

### Southwest Asian Crops in Sudan: Evidence from a Storage Facility on Sai Island

**Elisabeth Hildebrand** (Stony Brook University, Stony Brook), **Timothy Schilling** (Midwest Archaeological Center, Lincoln, Nebraska)

The Nile was a major avenue for the spread of southwest Asian crops into the African continent. Considerable research has focused on their early cultivation in Egypt, where wheat, barley, and pulses initially supplemented local wild plant foods and eventually formed the basis of a Neolithic economy prior to the development of social stratification. In Sudan, barley is found in burials at Kadruka quite early (contexts are dated to 5th millennium Cal BC, Reinold 1997). Later, barley appears in storage pit contexts at Sai Island (grains are directly dated to 4100 bp, Geus 1998). A wide variety of scenarios can be entertained for the spread of plant food production into areas of the Nile upstream from the 2nd Cataract. They include the incorporation of grain into exchange networks managed by local incipient elites, gradual adoption of cultivation practices progressively farther upstream, and the transport of grain by Egyptian traders or explorers. This paper examines the physical and social context for the earliest southwest Asian crops on Sai Island, with the goal of discerning among these scenarios and understanding the motives of northern Sudan's earliest farmers.

### The Origin of Cereal Crops in Ancient Egypt

**René T.J. Cappers** (Groningen Institute of Archaeology, University of Groningen, Groningen)

The transition to agriculture started relatively late in Egypt. The domesticated crops have been introduced from several neighbouring areas, including the Levant, Africa south of the Sahara and India. It turns out that, as far as cereals are concerned, three major shifts occurred in cereal selection: (1) the transition to the New Kingdom, (2) the transition to the Greco-Roman period and (3) the transition in the twentieth century. An explanation for these shifts will be given with respect to major economic criteria, including (1) yield, (2) labour, (2) fuel and (4) logistics with respect to storage and transport. It will also be shown that such detailed modelling is only possible if plant remains from excavations are studied by their morphology rather than by measuring signals of biomolecules (such as isotope analysis).

## POSTER

### Documentation of Traditional Agricultural Activities in Anatolia: Socio-Economic Factors of Glume Wheat Cultivation

**Burhan Ulaş** (University of Rome "La Sapienza", Rome), **Girolamo Fiorentino** (University of Salento, Lecce)

Archaeological, archaeobotanical studies in Anatolia give the first documentation domesticated plants and in fact, about 12.000 years ago it was here where much of the "Neolithic Revolution" took place. Recent studies have shown that the

ancestors of some plants, included in the Neolithic “Seed Package”, form part of the Anatolian vegetation. Emmer and einkorn wheat cultivation in Anatolia dates back to the Neolithic period. Over time, the cultivation of these kind of cereals has become marginal. Today in Anatolia where it is not economically feasible to do otherwise, poor peasants continue to cultivate emmer and einkorn wheat with a percentage of 2% of the total cultivation. An ethnobotanical research would establish: - the current social and economic reasons of these species cultivation; - traditional farming methods and practices which justify the effective cultivation of these ancient species even today, and such a case determine all the characteristics of the traditional farming methods and practices in Anatolia.



## T04S009 - INTO THE WILD – THE EXPLOITATION OF WILD SPECIES AND ENVIRONMENTS

**Organizers:** **Véronique Zech-Matterne** (CNRS/MNHN UMR 7209, Paris), **Sidonie Preiss** (Institut Royal des Sciences Naturelles de Belgique Département de Paléontologie Service, Anthropol), **Julian Wiethold** (Institut national de recherches archéologiques préventives (Inrap), laboratoire archéobotanique - UMR 6298 ArteHis, Université de Bourgogne, Metz)

The domestication of numerous plant and animal species caused major changes in agricultural systems but it didn't systematically reduce or obliterate the role of many wild species, gathered or even cultivated in the wild and different anthropogenic open spaces. Many trees, fruits, spices or dyeing plants occupied a privileged place in the subsistence strategies and commercial exchanges of many ancient populations, without becoming genetically differentiated from the wild types. The natural environments and those strongly influenced by human impact were both exploited for their numerous resources: food, fuel, fodder, cover and litter. They were also offering survival opportunities in case of difficult periods. This session will not only focus on the gathering strategies but also on the ways wild species have been cultivated or used improving and diversifying the domestic ones, either as a substitute or a complement to them. From the Neolithic period onwards, for example, deforestations intended to create open spaces for cereal cultivation could have included the preservation of useful forest trees in order to diversify the gained products. During the Roman and medieval times, red berries, hazelnut and even grapevine had their place in the gardens and orchards of north-western Europe, as well as wild legumes and ornamental plants. Nowadays, several fruit trees, like *Argania spinosa*, are still protected and exploited in the wild, for oil production, and not planted in orchards. Agroforestry extends also greatly in several part of the world. We could moreover discuss how these wild species are selected and spread, the reasons of their attractiveness, the investments made by the populations on the spaces where they are planted or cultivated, how the property on these sources of income is recognised when they are exploited in the wild, through time, with a large chronological perspective. The point of view of ethnobotanists, geneticists, historians, landscape archaeologists and archaeobotanists will be welcome.

## ORAL PRESENTATIONS

### Valley-Bottom Food Plants and the First Permanent Villages of the Northern Fertile Crescent: The Assemblages of Hallan Çemi and Demirköy (Turkey)

**Manon Savard** (Université du Québec à Rimouski, Québec)

The charred archaeobotanical assemblages of two Epipalaeolithic / PPNA sites, Hallan Çemi and Demirköy, are overwhelmingly dominated by small-seeded valley bottom plants such as club-rush and knotgrass. These plants have also been found to be common at other broadly contemporary sites from the Fertile Crescent including Körtek Tepe, Abu Hureyra I and Mureybet. Examination of the plant remains of Epipalaeolithic and early Neolithic sites may have paid too much attention to the wild progenitors of the later domesticated crops, at the expense of other wild food resources whose importance was overlooked, especially those that have never been domesticated. To account for the presence of wild small-seeded plants in archaeobotanical assemblages, they are often interpreted as building material, as weeds introduced on the site with other plants or with dung burnt as fuel. When they are considered to be food, wild small-seeded plants are often regarded as famine-food or, in an optimal foraging perspective, as low rank resources. New evidence actually suggests that the exploitation of valley-bottom plants may have played a key role in subsistence, as a staple food that made sedentism possible.

### Neolithic Root Tubers of Lesser Celandine *Ranunculus Ficaria* L. - Wild Food, Early Weed or Ritual Marks?

**Stefanie Klooß** (Institute of Pre- and Protohistoric Archaeology of the Christian-Albrechts-University Kiel, Kiel), **Elske Fischer** (Landesamt für Denkmalpflege Baden-Württemberg Labor für Archäobotanik, Hemmenhofen), **Wiebke Kirleis** (Graduate School “Human Development in Landscapes”, Christian-Albrechts-University Kiel, Kiel)

Exploitation of wild food sources is common in the Neolithic. This presentation focuses on root tubers of lesser celandine (*Ranunculus ficaria* L.) which possibly contributed to people's diet. The root tubers mostly are easy to recognize in the

archaeobotanical material because of their characteristic cell pattern. Soil samples from Neolithic domestic and ritual sites in the North European Plain often contain charred remains of lesser celandine tubers. Finds seem to concentrate in the Early Neolithic, when woodland was cleared for the first time and Funnel Beaker groups started cereal cultivation. From its ecological requirements, lesser celandine is a hemicryptophyte in temperate deciduous and alluvial woodlands that is common at forest edges and hedges. It regularly occurs in disturbed areas. The co-occurrence of the charred tubers with cereal grains in the archaeobotanical assemblages account either for their former use as food source or for their interpretation as weed species in arable fields. Their relevance in ritual contexts may be explained through widespread use of fire and earthwork activities in enclosure and tomb sites. The new Neolithic finds are discussed in the light of a compilation on tuber finds of *Ranunculus ficaria* from prehistoric sites throughout Europe with different archaeological contexts.

### **Acorn Gatherers in the Apulian (SE Italy) Bronze Age**

**Milena Primavera** (University of Salento, Department of Cultural Heritage, Lecce), **Girolamo Fiorentino** (University of Salento, Lecce)

The analysis of archaeobotanical assemblages recovered in several sites in Apulia region (south-eastern Italy), have revealed the importance of acorn gathering and use in Bronze Age communities. The charred acorns, associated with domestic fireplaces, were found next to griddles and mixed with other edible plants (cereals, legumes and other tree fruits), suggesting they played an important part in proto-historic food habits. Taking into account the paleoenvironmental reconstruction of the region during the II millennium B.C (offered by pollen and charcoal analysis), the biometric analysis (applied on archaeological cotyledons and modern analogous) and the ethnobotanical comparisons (concerning the various processing and storage methods) have been performed in order to: 1) identify the specific taxonomy of the remains and 2) address the economic role of oak fruits. The chronological horizon in which the intensive exploitation of acorns occurred poses an interesting though as yet unresolved question: this was a period when the systematic harvest of the fruits of certain trees (such as olives, vines and figs) soon led to the organised planting of these trees as crops, but the habit of eating acorns did not lead to the same result in terms of “domestication”.

### **Stone Age (8000-1500 BC) Plant Gathering in Finland**

**Santeri Vanhanen** (University of Helsinki, Helsinki)

This presentation discusses gathered plants during the Mesolithic and Neolithic Periods (ca. 8600-1500 BC) in Finland. Archaeobotanical data from both waterlogged and open air sites are collected into the Strategic Environmental Archaeology Database ([www.sead.se](http://www.sead.se)). Pollen analyses show signs of eastern Comb Ware (ca. 5000-3200 BC) cultivation, but the first charred grains derive from the Late Neolithic period (ca. 2500 BC). However the importance of cultivation seems to have been minor and subsistence relied mainly on forager strategies, which changed during different climatic conditions. Pollen and subfossils of *Trapa natans* and other nowadays southern species have been found from layers dating to the period of the Holocene Thermal Maximum (ca. 4500-2500 BC), when annual mean temperatures were 1-2°C higher. Other commonly found gathered plants contain various berries, nuts, roots and aquatic plants. Taphonomy of charred gathered plants is discussed because the interpretation between gathered for food vs. gathered for firewood poses challenges when dealing with underbrush of heaths consisting of various Ericaceae species. The work will be the first comprehensive survey of Stone Age plant remains in Finland and thereby serve as an excellent platform for future studies and archaeological interpretations.

### **Invasive Species or Innovative Agricultural Strategy: The Presence and Use of *Chenopodium album* L. (Fat Hen) in the Eurasian Bronze and Iron Ages**

**Ryan Hughes** (University of Michigan, Ann Arbor), **Laura Motta** (University of Michigan, Ann Arbor), **James Reslier-Wells** (University of Michigan, Ann Arbor)

Within the archaeobotanical literature, *Chenopodium album* (Fat Hen) is almost always either regarded as an invasive synanthropic weed species or ignored altogether without further explanation. This view of *Ch. album* has been heavily influenced by our contemporary agricultural experience with the species as invasive and detrimental to desired cultivated plants (especially wheat and maize) through resource competition. However, at a number of sites in Europe and Southwest Asia, *Ch. album* remains have been recovered from contexts that suggest the intentional use of the plant. This paper presents the initial results of a research project designed to evaluate and understand *Ch. album*'s place in ancient agricultural production. To achieve the project's goals, a proprietary – and continuously evolving – database has been developed which organizes the known sites and contexts from which *Ch. album* remains have been recovered. This database allows us to evaluate variation in the size and function of sites where remains have been found, the contexts from which they were recovered, and ultimately to develop a broad picture of *Ch. album* in the Eurasian Bronze and Iron Ages. Our work so far suggests that in a number of places *Ch. album* was being intentionally utilized in conjunction with domesticated species.

## Exploitation and Sustainability of Wild Plant Resources: An Archaeobotanical Perspective from the Territory of Sagalassos, NW Anatolia

**Elena Marinova** (Katholieke Universiteit Leuven, Leuven), **Dragana Filipović** (University of Oxford, Oxford), **Ellen Jansen** (Katholieke Universiteit Leuven, Leuven), **Bart Muys** (Katholieke Universiteit Leuven, Leuven), **Wim Van Neer** (Katholieke Universiteit Leuven, Leuven), **Jeroen Poblome** (Katholieke Universiteit Leuven, Leuven)

The combined archaeobotanical datasets of seed/fruit and wood charcoal remains from the Classical Hellenistic site of Tepe Düzen and the Roman-Byzantine city of Sagalassos located in Taurus mountain range are presented and discussed in relation to the exploitation and possible management of the wild or wild-cultivated (not domesticated?) vegetation growing in the surrounding of the site. The paper discusses the archaeobotanical evidence of woodland management, timber, fuel and fodder procurement, as well as the evidence of wild fruit and herbs collection for possible artisanal and medicinal purposes. The results are compared with the available ethnographic data, and with land use and forest growth models, in order to explore different venues for the interpretation of these two datasets. Moreover, using the archaeobotanical assemblages and floristic studies from the region, evaluation of the potential of past plant habitats and their possible disturbance and degradation is offered.

## History and Archaeology of the Argan Tree in the AntiAtlas Mountains (Morocco)

**Marie-Pierre Ruas** (UMR 7209, CNRS/MNHN, Paris), **Jerôme Ros** (UMR 7209, CNRS/MNHN, Paris), **Jean-Frédéric Terral** (CNRS/University Montpellier, Paris), **Sarah Ivorra** (CNRS/University Montpellier, Paris), **Hélène Adrianarinosy** (Musée national d'Histoire naturelle, Paris), **Jean-Pierre Van Staëvel** (UMR 8167, Université Paris IV, Paris), **Ahmed Ettahiri** (Institut National des Sciences de l'Archéologie et du Patrimoine-I.N.S.A.P., Ministère de la Culture, Royaume du Maroc, Rabat), **Abdallah Fili** (University El-Jadida, El-Jadida)

The argan (*Argania spinosa*) is a species of tree endemic to the calcareous semi-desert Sous valley of southwestern Morocco. The wild tree is a staple resource for the current population in Tifigit (1350m) as a source of fodder, oil, timber and fuel. The other primary resources cultivated are barley, on the non-irrigated mountain, and vegetables in irrigated gardens. The archaeological site of Igliz, near Tifigit, has produced exceptional archaeological, historical and ethnobotanical evidence for the role of argan trees during the medieval period. Ecoanatomical archaeometrics deduced from archaeological charcoals may identify if exploited trees are sourced from irrigated gardens or various wild contexts. Types of exploitation can be revealed through written historical evidence as well as the contextual and taphonomic state of species-identified charcoals and seeds. We aim to apply this interdisciplinary approach to the investigation of the role of the argan tree in past populations and the mode of sourcing, methods of exploitation, and the products sourced.

## Wild Plants and Colonial Identities in Quebec City (Canada)

**Julie-Anne Bouchard-Perron** (University of Nottingham, Nottingham)

When Europeans explored and settled distant geographies, known and cultivated plants reminded them of home and gave them a sense of security but were often in shortage. In this context, Native wild plants offered some alternatives and were perceived as a source of high hopes but also as a threat. With time, not only they offered new social possibilities but they became a vehicle of colonial identity and even fostered a burgeoning sense of nationalism. This presentation explores the changing role of wild plants among European colonists and their descents for over three centuries in Quebec City area (Canada) on the basis of archaeobotanical evidence. It is concerned with when, why and how many native plants have been introduced in the colonial world and how this may relate to wider social and political processes.

## The Medicinal Use of Plants during the Middle Ages and Early Modern Times - Evidence from Archaeobotany and the Early Herbal Literature

**Julian Wiethold** (Institut national de recherches archéologiques préventives-Inrap, laboratoire archéobotanique, UMR 6298 ArteHis, Université de Bourgogne, Metz), **Sidonie Preiss** (Royal Institute of Natural Sciences, Department of Palaeontology, Service Anthropology and Prehistory, Brussels)

During the Middle Ages and early modern times plants species of different families were not only appreciated as aromatic plants and spices in culinary preparations, but also used treating various health problems and illnesses. They were applied in form of teas and other preparations, treating stomach and intestinal problems, inflammations and eye-illnesses. Various plants were used against intestinal parasites. Some of these species are well known garden plants, most probably cultivated as spices and for their medicinal properties. In contrast to the medicinal use of aromatic plants cultivated in gardens, the use of collected wild plants for medical treatment is still less considered and the archaeobotanical records are less frequently interpreted as evidence of medicinal use. We are comparing the written evidence of the use of wild plants in early medicinal tracts, herbals and spice books with archaeobotanical records from medieval and early modern plant assemblages. Which of the wild plants were used according to the written sources and which criteria should be applied while suggesting that plants in the archaeobotanical record may have been used?



## Collection in the Wild or Cultivation: Archaeobotanical and Iconographical Approaches to the Use of *Fragaria vesca* L. in Medieval and Early Modern Times

**Sidonie Preiss** (Royal Institute of Natural Sciences, Department of Palaeontology, Service Anthropology and Prehistory, Brussels), **Julian Wiethold** (Institut national de recherches archéologiques préventives-Inrap, laboratoire archéobotanique, UMR 6298 ArteHis, Université de Bourgogne, Metz)

During the middle ages, strawberry, *Fragaria vesca* L., is frequent in the settlements from north-western Europe. The species can often be recorded in huge quantities. The issue of its cultivated or wild status has to be discussed. It is impossible to determine whether the species is wild, cultivated or domesticated from simple anatomical observation of its achenes. Several elements could influence the presence and abundance of strawberry: the fruit of the strawberry produces many achenes; these are very resistant to biodegradation and they keep even well in contexts where organic decomposition of organic matter is strong. In medieval and early modern times they are quite common finds in the filling of cesspits and kitchen rubbish pits. The presence from *Fragaria vesca* in the archaeobotanical assemblages from cesspits can be resulting from collections from the wild, but also specimens cultivated in gardens. Indeed, the species is a characteristic component of forest borders and clearings and collection of the fruits was easy. However, from iconographic and textual sources, we can observe that strawberry was depicted as a garden plant on several religious paintings, due to its strong symbolic meaning as symbol of the pureness of Saint Mary. In addition, from the tenth century to the early modern times, the species is increasingly frequent in archaeobotanical assemblages. Through these several elements, we can imagine that the cultivation of strawberry could have taken place earlier than was previously estimated.



## T04S010 - MEDITERRANEAN LANDSCAPES IN POST ANTIQUITY: NEW FRONTIERS AND NEW PERSPECTIVES

**Organizers:** **Lauro Olmo Enciso** (Ca' Foscari University in Venice, Venice), **Sauro Gelichi** (Alcalá University, Madrid)

In recent years Landscape Archaeology has considerably improved its interdisciplinary approach, integrating traditional research with more advanced and sophisticated methods, exploiting in an innovative way the results of paleoenvironmental researches. The fundamental theoretical structures have also progressively changed. Landscape, once considered an inactive 'holder' of settlement, is now seen as an interactive subject whose evolution and resources are in continuous synergy with human occupation processes. Archaeological evidences are now considered useful tools to understand how landscape itself was perceived and perceptively built. These theoretical and methodological models were developed especially in Central and Northern Europe, where they achieved important innovative results. The proposed session aims to verify how these approaches have been adopted and used in the Mediterranean area, by answering to the following questions: which is the status of landscape research in the Mediterranean countries? Are there different approaches in landscape analysis between scholars of Antiquity and scholars of post Antiquity? If we consider that paleoenvironmental records are invaluable sources in reconstructing historical processes, which strategies are being defined for their preservation or to rescue these data in the development plans of rural areas? This session invites submission of papers dealing with methodology or case studies.

## ORAL PRESENTATIONS

### The "Arco Di Giano" in the Forum Boarium (Roma). The Building in the Framework of the Velabrum Medieval Landscape

**Pedro Mateos** (Instituto de Arqueología CSIC, Mérida), **Antonio Pizzo** (Instituto de Arqueología CSIC, Mérida), **Mirella Serlorenzi** (Soprintendenza Speciale di Roma, Rome)

The proposed paper presents a synthesis of the results obtained in the framework of a research project between 2009-2012 on the Arco di Giano in the Forum Boarium (Roma). Project goals outlined a new monographic analysis regarding the history and architecture of the monument. In this sense, a new analysis has been made of the extensive written and graphic sources about the arch, in order to understand its perception within the monumental buildings of Rome. Among the results - constructive analysis of the building process, material sources and decorative apparatus - is intended to highlight the diachronic evolution of the monument from its construction to its reuse in medieval times, as a fundamental element of the Velabrum to the essential role played in early medieval times. With the support of the stratigraphic analysis of the building and the archaeological excavations in an adjacent large area, a proposal is configured to define, for the first time, the role of this very significant building in the historical evolution of the Forum Boarium and its relations with medieval buildings in the area of the Velabrum.



## Matrices of Post-Antique Settlement of the Central Balkans: Space Use of the Justinianic Landscape in the Early Middle Ages

**Vujadin Ivanišević** (Institute of Archaeology Belgrade, Belgrade), **Ivan Bugarski** (Institute of Archaeology Belgrade, Belgrade)

The Early Mediaeval occupation of the Central Balkans hills began in the 9th and the 10th centuries. This process testifies to a new organization of the society and the use of the landscape. These new strongholds were built over the remains of Late Roman hillforts, spread throughout the mountain ranges which occupy large territories from the Adriatic coast to the Danube in the north. The hillforts were abandoned at the end of the 6th and the beginning of the 7th centuries. The best studied examples of reoccupation of Late Roman hillforts come from the region of Ras in the southwestern part of present-day Serbia - the fortresses of Ras, Postenje and Vrsenice. They testify to slow restoration of Roman communications and the reuse of Late Antique landscape, and to the processes of the development of the medieval society.

## Landscape Archaeology in Byzantine Greece, with Special Reference to Attica (4th-12th c.)

**Elissavet Tzavella** (University of Leiden, Leiden)

Attica, the surrounding territory of Athens, formed recently the topic of an extensive topographical study which focused on the Byzantine period. In that, palaeo-environmental studies remained a desideratum, and research had to rely on 'traditional' methods in order to describe environmental change: limited archaeological evidence about earthquakes and change of coastline, settlement patterns, as well as reports of early travellers. These methods are still the main ones being used in landscape studies of Byzantine Greece, as shown also by major works focusing in the Peloponnese, Thessaly and Epirus – an exception being noted in Macedonia. In that regard, use of updated methodologies in the study of the medieval palaeo-environment is highly needed. However it would be useful, at this early stage, to single out main questions with which archaeologists and historians of Byzantine Greece are concerned. Which kind of dataset regarding the evolution of environment would be most useful when combined with our present knowledge of Byzantine Greece? It is considered as important, at this stage, to put together questions and preliminary answers addressed already by scholars, before proceeding to the adoption and use of updated methodologies, which have already proven to be extremely useful in archaeological landscape studies of other regions, such as NW Europe, or other chronological periods, such as prehistory.

## Archaeology of Peasantry in Northern Iberia. Medieval Landscapes

**Idoia Grau Sologestoa** (University of the Basque Country, Vitoria-Gasteiz), **M.I. García-Collado** (University of the Basque Country, Vitoria-Gasteiz), **Carlos Tejerizo García** (University of the Basque Country, Vitoria-Gasteiz), **Begoña Hernández Beloqui** (University of the Basque Country, Vitoria-Gasteiz), **Alfonso Vigil-Escalera** (University of the Basque Country, Vitoria-Gasteiz), **Juan Antonio Quirós Castillo** (University of the Basque Country, Vitoria-Gasteiz)

During the last 15 years a deep renovation on the study of medieval landscapes has taken place in the north of the Iberian Peninsula as a consequence of the boost of preventive archaeology, the execution of large projects and the development of integrated geo- and bioarchaeological researches. In this context it has been possible to build up a holistic approach to the archaeological study of landscapes which has meant the overcoming of the traditional limits of individual sites incorporating the analysis of the productive spaces and the systemic relations between different kinds of available records. The aim of this communication is to briefly present the theoretical and conceptual bases the GIPYPAC has been working on in different areas of the north-western Iberian Peninsula, integrating both applied research on preventive context and investigations focused on the transversal analysis of palaeoenvironmental records. For doing so, two case studies from Madrid and Basque Country will be analysed and a synthetic comparative discussion between these two examples will be done, assessing their implications in historical and heritage terms. Emphasis will be specifically put on peasantry as a key agent in the modelling of historical landscapes.

## The Rural Landscape Transformation after the Founding of the Bishopric of Eio In (El Tolmo De Minateda, Albacete, Spain). From the 5th until the 8th centuries A.D.

**Julia Sarabia** (University of Alicante, Alicante), **Victoria Amorós** (University of Alicante, Alicante), **Sonia Gutiérrez** (University of Alicante, Alicante)

Despite the early abandonment as administrative center suffered by the roman city of *Ilunum*, located on the current site of "El Tolmo de Minateda" (Hellín, Albacete), the development of its territory as a living space was more than noticeable until the 5th century AD. Between the late 6th century and early 7th century, on the former site of *Ilunum* will be installed the new episcopal city of *Eio*, that will handle a wide territory. Our work aims to analyze the rural landscape of this city after its revival, until its conversion into an Islamic *madīnat* in the early 8th century. By remote sensing technologies, surface reconnaissance and review of archaeological materials, it analyzes how the roman *villae* evolved, and the emergence of new farmers nuclei (villages or scattered habitats) and of the possible height settlements of a certain importance (*turris, castra, castella*).

## **Environmental Interaction in the Archaeological Record of Historical Societies in Upper Ebro Valley, Spain**

**Eneko Iriarte** (Universidad de Burgos, Burgos), **Leonor Peña-Chocarro** (Escuela Española de Historia y Arqueología en Roma / GI Arqueobiología. Instituto de Historia, Madrid CSIC, Madrid), **Juan Manuel Tudaca** (Fundación Museo Vivanco. Briones, La Rioja), **Carlos López de Calle** (Fundación Museo Vivanco. Briones, La Rioja)

The stratigraphy of the La Noguera site (La Rioja) reveals the various transformations a Roman agrarian exploitation went through. During the Iberian Dark Ages, this establishment was part of a large estate (*latifundium*) whose economy was based on animal husbandry. The site was later the see of a Medieval monastic community and, finally, a Cistercian farm. The main aim of this paper is to discuss the preliminary results of the research project we are currently developing. It explores the wide range of human environmental interactions, the shaping of landscapes, and the complex historical processes that took place in the territory successively exploited by the inhabitants of La Noguera. The evolution of this changing area demands an interdisciplinary approach in order to fully appreciate its multiple facets. Thus, different interrelated analytical methods will be used: a) Palaeoclimatic studies integrating various environmental proxies (pollen, geochemistry, sedimentary analysis, isotopes, genetics, etc.) b) Archaeobotanical analysis (seeds, fruits and charcoal) c) Medieval and Modern documentary information preserved in historical archives on crop species and crop systems, climatic data, demographic information, etc.

## **Reading Medieval Landscapes: Analysis and Researches on Lowland Areas in Northern Italy**

**Fabio Saggioro** (Verona University, Verona)

Starting from a series of studies conducted over the past 10 years in the Po Valley, the contribution is divided into three sections: 1) the relationship between man and environment in the Middle Ages and the problems related to the reconstruction of paleoenvironment. We want to emphasize that the topographical aspects of the ancient environment are as important as anthropogenic ones to understand the dynamics of the socio-economic landscapes; 2) examples and approaches to the study of the landscape of the Middle Ages, where we emphasize the need of a systematic use of research tools, 3) concluding remarks and research perspectives.

## **The Early Medieval Landscapes of the Maltese Islands - A Long Term Perspective**

**Nathaniel Cutajar** (Superintendence of Cultural Heritage, Valletta)

This paper illustrates the state of play of Early Medieval landscape archaeology in the Maltese Islands. Material Cultural studies feature particularly high on the agenda of these studies, since local Early Medieval contexts are rich in ceramics, particularly in imported amphora. Concurrently stratigraphic investigations and landscape survey have started mapping the changing landscapes of the Islands between the Byzantine and Islamic centuries. New information is also starting to be produced by paleo-environmental studies. The maritime dimension is the first landscape that needs to be considered. In the Middle Ages, Malta was seen as a land of transit for maritime travelers – as Procopius succinctly put it. Archaeology is starting to confirm Malta's role in a wide triangle of exchanges and communications linking the Maghreb, Italy and the Aegean. This is a composite landscape, made up both of intangible, shifting commercial links and communications, and of physical, immutable geographic realities. Archaeology also reveals a different landscape of localised micro exploitation of the Islands' limited resources – agricultural and coastal. A transitional picture is emerging of gradual transformation of land use and settlement patterns - from the ancient Roman estate model to new, highly clustered villages by the late Middle Ages.

## **Construction and Dynamics of Medieval Landscapes in the Center of Iberia**

**Lauro Olmo Enciso** (University of Alcalá, Madrid), **Manuel Castro Priego** (University of Alcalá, Madrid), **Amaya Gómez de la Torre Verdejo** (University of Alcalá, Madrid), **Joaquín Checa Herráiz** (University of Alcalá, Madrid)

The archaeological interpretation of medieval landscapes and its diachronic evolution shows complex dynamics. These combine variables, which internally contain regional differences within the various scales of social and productive organization registered in the landscape. Such is the case of our project, carried out in the eastern area of the Iberian Meseta covering the period between 6th and 15th centuries. Work is being done with an interdisciplinary approach that contextualizes, in a spatial scale, data coming from archaeological, written, cartographic, paleoenvironmental and archaeozoological analysis. The integration of these data into a spatial scale through the use of new technologies (LIDAR, DMT...), is allowing us to evaluate changes and transformations of the settlement patterns and road systems, the characterization of agricultural landscapes, evolution of irrigation systems, development of livestock areas, besides the recognition of erosive processes and anthropic changes. This framework allows us to obtain an integrated view of the complexity and temporality of situations that shaped this period, and its different phases (visigothic, islamic and feudal), with three different landscape patterns, reflecting differentiated social models.

## **Continuity, Innovation and Decline of Agricultural Fields in Early Islamic Palestine**

**Gideon Avni** (Israel Antiquities Authority, Jerusalem)

Three decades after the publication of Andrew Watson's book *Agricultural Innovation in the Early Islamic World* (1983), new insights on early Islamic agriculture in the Near East are provided by a number of detailed studies aimed to reconstruct the chronological framework and mode of operation of ancient agricultural fields in the southern Levant. Based on recent archaeological research of rural hinterlands, which included the dating of agricultural terraces in the Negev Highlands and the Jerusalem region with OSL (Optically stimulated luminescence) methodology, this presentation will discuss the processes of continuity, innovation, change and decline in the agricultural regimes of Early Islamic Palestine, suggesting a new chronological framework for their intensification and abatement.

## **The Formation of Large Urban Huertas in Sharq Al-Andalus: Old Problems and New Methodological Research Strategies**

**Jorge A. Eiroa Rodríguez** (University of Murcia, Murcia)

The debate on the formation of complex peri-urban hydraulic systems of the Southeastern Peninsula and the Levante after the Islamic conquest has been a constant in the Spanish historiography of the last two centuries. The alleged romanity of the large urban huertas was gradually giving way to an even simpler explanation that linked them exclusively to the direct initiative of the Cordoba State. However, recent archaeological findings suggest a more modest and local origin, in which the peasant settlements also play an important role. This paper proposes new research strategies for these complex irrigated peri-urban areas, in the context of Landscape Archaeology, in which the study of the archaeobiological records occupies a prominent position. To this end several specific cases will be analyzed and a proposal of study for the huerta of Murcia will be presented.

## **Hydraulic Landscapes of the Mediterranean. Granada and Its Plain in the Middle Ages**

**Luis Martínez Vázquez** (University of Granada, Granada)

Irrigation is one of the key issues in Mediterranean landscapes, shaping them since time immemorial. It was largely developed in the Middle Ages (although previously existing), especially in the Islamic World, giving birth to very fertile areas in which species unknown to the Mediterranean agroecosystem could be grown. That meant a very important change not only in terms of nature but also, and most importantly, in the making of the landscapes. In other words, it was a major step for society in its contradictory and unpredictable relationship with the environment. Our study deals with the development of irrigation in a Mediterranean Valley, the plain of Granada, since the 11th-12th century until the Christian conquest. Both time and space had been chosen for the sake of comparison with other well known irrigated landscapes in the Mediterranean, such as the ones in Syria or Egypt. Several topics will be discussed: the ecological pattern created with irrigation and how it resisted or not the passage of time, with different societies and economic perspectives; how the irrigation network was developed and its importance within the landscape; and the articulation of irrigation from the communities or the authorities.

## **Animal Husbandry and Saltworks in the Kingdom of Granada (13th-15th Centuries). The Dynamics of Landscapes in a Mediterranean Territory**

**Antonio Malpica Cuello** (University of Granada, Granada), **Sonia Villar Mañas** (University of Granada, Granada), **Marcos García García** (University of Granada, Granada), **Guillermo García-Contreras Ruiz** (University of Granada, Granada)

The Mediterranean ecosystem has played a significant role in historical societies, and some of them have challenged its climatic and physical conditions. That is the case for the Andalusian society in the Middle Ages. They succeeded in creating an irrigated agroecosystem changing the hitherto existing Mediterranean one, through an artificial and controlled water supply added to the «natural» rain input. In addition to agriculture, adaptations occurred in other economic activities as well, mainly to animal husbandry and salt production. From a set of archaeological surveys carried out within the research project (SALGARN-HAR2011-24767), it has been detected large cisterns or medieval water tanks («aljibes») in areas of water shortage. These deposits are situated in strategic points in order to collect rainwater primarily used for the drinking necessities of livestock. On the other hand, the existence of artificial watered meadows in areas where the original conditions are unsuitable for pasturing, as well as the existence of hydraulic systems for the systematic production of salt are well-attested issues. Our study aims to elucidate how the Andalusian society developed several technical solutions in the processes explained. Solutions that have left their trace (archaeologically) in the different landscapes of the Nasrid Kingdom of Granada.

## **A Mediterranean Mountain Landscape. Transformations in the Frailes-Velillos River Valley (Granada) in Medieval Times**

**Alberto García Porras** (University of Granada, Granada), **Luca Mattei** (University of Granada, Granada)

The mountainous region of Granada is crossed by several valleys that have been for a long time used as means of communication between the Guadalquivir Valley and the so-called Intrabaetic Basin, a set of plains in which towns like Baza, Guadix, Granada or Antequera are located. These valleys have been settled since prehistory and they have played an essential role through history. One of these corridors, namely that formed by the Frailes-Velillos River, has been archaeologically researched through different methods (field survey, excavation and stratigraphic analysis of built structures) for several years. The aim of this paper is thus to put together the whole corpus of data gathered during fieldwork, including the analysis of specific sites, the evolution of the pattern of settlement and the changes in the exploitation of natural resources.

## **Time Travelling. Multidisciplinary Solutions to Reveal Historical Landscape and Settlements (The Case Study of Sant'Ilario, Mira, VE)**

**Elisa Corrà** (University Ca' Foscari, Venice), **Cecilia Moine** (University Ca' Foscari, Venice), **Sandra Primon** (Independent Researcher)

Our paper is focused on the case study of Sant'Ilario monastery and the evolution of the Southern lagoon of Venice. This area is particularly interesting from two different points of view: the geomorphological landscape is deeply changed, largely due to human activities. Furthermore, the monastery itself has been in the heart of ducal policies at the beginning of Venice history. Using geological data, archaeological surveys and excavations, integrating them with Medieval, Modern and Contemporary written sources, we reconstructed the paleoenvironmental landscape and its relationship with human settlements. We have two goals: at first, to outline the steps of our multidisciplinary approach and then summarize the interaction between human beings, settlements and the landscape, especially between Early and Late Middle Age. Nowadays, nothing remains of the ancient Sant'Ilario, therefore the connections between economic perspectives, environment and settlements in the past could be understood only through a refined reconstruction of medieval landscape.

## **Artificial Islands of Venice. The City Urban Evolution up to the Actual Aspect**

**Alessandra Ciansiosi** (University Ca' Foscari, Venice), **Margherita Ferri** (University Ca' Foscari, Venice), **Cecilia Moine** (University Ca' Foscari, Venice)

The current appearance of Venice is known to all. However, dynamics through whom the city centre had been developed on few lagoon islands, facing difficulties due to a constant increasing population, has been poorly systematized. The high urbanisation level and the lack of archaeological and geological data contributes to elude many attempts of reconstruction of the medieval urban landscape. This paper aims to coordinate written and archaeological information to define the evolution of Venice, pointing out the critical role of human activities, such as land reclamations and water management. Distribution of populated areas and commercial and productive place will be considered as key factors to understand the transformation of Venice appearance and its connections with the inhabitants, between Middle Age and the dawn of the 15th century.

## **The Case Study of Tusculum (Italy): Landscape Variations between Ancient and Medieval Times**

**Pilar Diarte-Blasco** (Escuela Española de Historia y Arqueología en Roma-CSIC, Rome), **Valeria Beolchini** (Escuela Española de Historia y Arqueología en Roma-CSIC, Rome), **Leonor Peña-Chocarro** (Escuela Española de Historia y Arqueología en Roma-CSIC, Rome)

The city of Tusculum, located at less than 20 km from Rome, was the dynastic Rocafort and the center of the powerful lineage of the Counts of Tuscolo, whose political and economic influence extended between the XIth and XIIth centuries -until destruction of the city in 1191-, from today's Castelli Romani to the coast of Latium, including Rome itself. In 2012, the Escuela Española de Historia y Arqueología en Roma started a new archaeological project focused on the site with a clear willingness to explore novel research trends and different methodological approaches. The multidisciplinary approach includes geophysical surveys, archeobiological studies, topographical analyses and drone and kite aerial photography as well as the study of archaeological and textual material. Data will provide simultaneously an overview of urban and rural landscapes of the ancient and medieval city. In particular, special emphasis will be put on paleoenvironmental studies that provide data not only on climate evolution but also on the interaction between local communities and the surrounding environment. Furthermore, understanding the development of agriculture and animal husbandry as some of the driving forces of landscape changes may help to throw some light into the economy and population patterns in the area under study.

## **Horses and Horsemen of Byzantine Cappadocia**

**Filiz Tütüncü-Çağlar** (University of Victoria, Victoria)

Renowned since antiquity as the legendary "Land of The Beautiful Horses," Cappadocia region in Turkey has been an important horse-breeding center throughout its history. The present work is a study on horses and horse breeding in the region in the

Middle Byzantine period with special attention being paid to the architectural evidence: the rock-cut stables. During this time, Cappadocia played a vital role for the defense and expansion of Byzantium in the east and the provincial elite that emerged in the region gained power and wealth through border defense. As possessors of great estates and large private troops, they held high positions in military and provincial administration. Recent studies have revealed that Cappadocia bears rich architectural evidence to illuminate this frontier environment during the Middle Byzantine period. This paper will investigate the stables of elite mansions in three settlements in Cappadocia, Açık Saray, Çanlı Kilise, and Selime-Yaprakhisar in order to understand the nature of horse breeding in Medieval Cappadocia. The architecture of the stables will be discussed in a broad context along with their possible functions and meanings and with reference to literary sources.

## POSTER

### The Landscape of Pisa in the Middle Ages: An Interdisciplinary Spatial Analysis Approach

**Gabriele Gattiglia** (University of Pisa, Pisa)

Whether natural or anthropised, the environment is not simply a container, but a key element in the development of human settlements. In this sense, the archaeological study of a city must be strictly related to the analysis of the environmental context surrounding it, which guides man's choices and contributes to determining economy as well as the social and political profile. This awareness is not new: over the past years renewed interest has developed, focusing mainly on the development of new interpretative models based principally on spatial analysis. In the case of Pisa, which is part of a geographical – environmental context characterised by a floodplain cut by two river basins, forming wetlands and marshes, varying their course and modifying the coastline, the influence of the environment is evident. What has been the role played by environmental aspects in the development of Pisa? Were they decisive, definitive or concomitant with other factors? We tried to answer these questions using spatial analysis and predictive modelling over a 350 km<sup>2</sup> area to provide a synchronic and comparative reading of data deriving from several sources: archaeological, geological, geomorphological, paleoenvironmental and toponymic data, and data inferable from written sources.



### T04S011 - MEDIEVAL MASTERCHEF. EASTERN CUISINE AND WESTERN FOOD CUSTOMS: AN ARCHAEOLOGICAL PERSPECTIVE

**Organizers:** **Joanita Vroom** (Faculty of Archaeology, Leiden University, Leiden), **Yona Waksman** (CNRS, Laboratoire de Céramologie, Lyon University, Lyon), **Roos von Oosten** (Faculty of Archaeology, Leiden University, Leiden)

The scope of this session is to discuss eating habits and food practices in Medieval Europe, using different approaches (archaeology, archaeometry, history) and specialities (e.g., ceramology, archaeozoology, archaeobotany, anthropology, etc.). Its perspective is that food, as a social and cultural marker, can be seen as a particularly significant factor in understanding complex relationships between a wide range of communities which were in contact, such as Byzantines, Muslims, Latins, Ottomans and others. Specific attention will be paid to the role of pottery (from transport amphorae to serving dishes or coarse wares) in the study of cuisine, cooking techniques and food customs. In this session we will investigate how, when and why transformations in pottery and other food-related markers took place, both in East and in West. Were developments in the East fundamentally different from those in the West? To what extent is it possible to link 'cooking revolutions' to changing pottery shapes, to changing food customs, to changing dietary practices, or perhaps even to house transformations? In short, can we understand these cultural and historical processes in an archaeological perspective?

## ORAL PRESENTATIONS

### Food as a Total Social Fact in Early Medieval England

**Dan Stansbie** (University of Oxford, Oxford)

Food has a way of inserting itself into all aspects of human life from politics and religion to the mundane and routine, drawing together humans, animals, plants, buildings and public spaces and smaller scale material culture, such as ceramics, but when archaeologists study food they most often do so through single categories of artefact, studied in isolation. This paper will aim to examine changes in early medieval food consumption by studying changes in building type, ceramics and faunal assemblages as a whole, focusing on a case study from early medieval Yarnton, in the Upper Thames Valley, England. Changes in ceramics and building styles in early medieval England have traditionally been interpreted in terms of Germanic acculturation or migration, but I will argue that the introduction of Saxon style sub-rectangular halls, pottery and preferences for certain animal species over others had as much to do with the projection of power through communal eating and drinking.



## What was Cooking in Those Pots?

**C. Cohen Stuart** (Independent scholar)

Food is what we need every single day of our lives. We need it to sustain our body and ourselves. More than obvious, this is also true for those- whose lives we investigate as archaeologists. As we eat daily so did the people whose lives we investigate. Archaeological research has provided us with a vast array of vessels, instillations, botanical, faunal and other remains, which are connected to food. Many different studies have been conducted in order to reconstruct the types of pottery we find, the possible pottery-contents and types of plant remains. For every published site, there are long lists containing amounts of pottery and types of pottery excavated. We are told what kinds of plant remains and bones there were at this or that site. There will be descriptions of the instillations excavated. All these will be thoroughly described and defined. Yet, while most of these finds are connected to food, there have been only a few attempts to come to a reconstruction of the basic function of these items put together: being the preparation and consumption of “a daily meal.” This paper is about the attempts to reconstruct a possible daily meal.

## Eating Habits in Tarsus in the Early Islamic Period: A Ceramic Perspective from the East

**Yasemin Bağcı** (Leiden University, Leiden)

The Early Islamic ceramic corpus presented here was excavated on the mound of Gözlükule, in Tarsus (south-eastern Turkey) by the American team lead by Hetty Goldman in the 1930s. Due to its strategic position, Tarsus became one of the most important centers of the Abbasid thugur, the fortified region on the Islamic-Byzantine frontier in Early Islamic period (c. 8-10th centuries C.E.). This paper intends to explore the eating habits of the inhabitants of the Gözlükule mound in Early Islamic times by making use of the pottery evidence. The different types of ceramics found in the Gözlükule assemblage will be discussed according to their morphology, breakage, transportability, and the relation between their shape and function in order to understand the socio-economic and cultural contexts of Tarsus in the eastern Mediterranean during Byzantine and Early Islamic times.

## Changing Eating Habits in Al-Andalus. The Archaeology of Social Change and Food Practices during the Islamic Period in Iberia

**Marcos García García** (University of Granada, Granada), **Cristina Martinez** (University of Granada, Granada), **Jose C. Carvajal** (UCL Qatar, Doha)

The use people make of food and drink, as ‘the fuel of life’, is one of the most conspicuous social phenomena. Due to the fact that the religious, symbolic and social spheres of eating practices are inextricably combined, any social change may, theoretically at least, be linked to changes in food customs. Our study aim is to elucidate, from an archaeological perspective, the changes in food and dietary practices during the Islamic period in Iberia (8th-15th centuries AD), using ceramic, zooarchaeological and textual data. On the grounds of these different approaches, the existence of two main cultural influxes in food habits and cooking techniques may be detected: from the East Mediterranean between the 8th-10th centuries and from the North of Africa during the 12th-13th centuries. A case of study from a domestic rubbish-dump (10th century) will be also presented, showing how pottery and faunal data allow to identify food habits, cooking techniques and the social context of meat consumption of an Islamic community in Western Mediterranean.

## Reforming the Table. Choosing Table Sets and Cooking Pots before and after the Counter Reformation (Religious Communities in Comparison, Modena, Italy)

**Cecilia Moine** (Università Ca’ Foscari, Venice), **Lara Sabbionesi** (Università Ca’ Foscari, Venice)

The goal of this paper is underline the role of conviviality and food processing in social dynamics comparing different religious community and analysing their choice in table sets and cooking pots. Our chronological range (15th-16thc.) concerns a long term history phenomenon, because our aim is understanding changes in meal habits after the Counter Reformation. The main case study is the nunnery of San Paolo in Modena, where two different dumps have been discovered and respectively dated back to the late 15th c. and to the late 16th c. Both contained table and cooking sets used by the religious community before and after the Tridentine Concil. The analysis of shapes, typologies, capacity, decorations and customized items stress a deep change in community dynamics, which had taken place at the meal time. This context and the comparison with finds from other religious community in Modena highlighted how and how deep the Counter Reformation norms transformed the everyday life inside the cloister and how important was the role play by conviviality in individual and communal representation. Moreover, anomalies and transgression recorded are a clue of the significance of communal meal in social representation.

## Reconstruction of Medieval Eating Habits According to Animal Remains from Archaeological Sites in Koper (Slovenia)

**Mateja Kovač** (Independent researcher)

This thesis deals with the analysis of animal remains in medieval Koper sites (Slovenia). The aim of the thesis was to get new insights in the field of archaeozoological research, which are an important source of information about the medieval town



and would serve as the foundation for further research. The material comes from two archaeological sites: late medieval site Muzejski trg and early and late medieval site Kreljeva ulica 6. In this context the main objectives were focused on taxonomic determination of domestic and wild animals, identification of relationships between taxa and their economic significance to humans. According to the archaeozoological analysis, conclusions relating to the medieval economy and cuisine were formed. The results were compared with data from concurrent sites in Slovenia. Very numerous were also remains of various marine organisms such as snails and shells. This thesis are the first archaeozoological study from the Slovenian coastal towns and provides new information on archaeozoology in Slovenia.

### **Approaching Medieval Cuisine: Employing Zooarchaeological Methods on Anatolian Faunal Assemblages** **Lubna Omar** (Ahi Evran University, Kırşehir)

Zooarchaeological research methods are substantial tools to provide direct evidences of socio-economic patterns in ancient societies. Analyzing faunal remains collected during archaeological excavations assists us in reconstructing a comprehensive picture of cultural and economic activities that took place in a certain community or settlement, and to demonstrate how ancient societies integrated animal resources in their diet. In this study investigating cooking practices of the medieval period is focused on settlements located in southern Anatolian, where Eastern and western influences played a major role in shaping lives within this crucial region. Zooarchaeological research is employed to assess the most abundant meat resources and butchery patterns in each mediaeval settlement, utilizing statistical representations and performing comparative inter-sites study based on the social strata of each town. In addition, this study integrates various types of archaeological resources (such as pottery, depictions, written records and archaeobotany...) in order to enhance our understanding of the medieval culture and its interactions in terms of diet practices and nutrition choices. As a result evaluating the patterns of animal economy in medieval communities would illustrate the impact of cultural factors on the economic characteristics of historical societies.

### **A Tableware Repertoire of the Ottoman Period in the Athenian Agora: Traditions and Innovations** **Joanita Vroom** (Leiden University, Leiden), **Elissavet Tzavella** (Leiden University, Leiden)

Dining habits can be seen with archaeological contexts which preserve tableware and / or cookware. Regarding Medieval Greece, dining habits have been studied mostly in relation with Corinth and Boeotia, and comparisons have been undertaken between the Byzantine and the Frankish periods. In the present paper, material from the Athenian Agora is brought into play, and comparison is extended to the Ottoman period. What does a well-preserved tableware repertoire of the Ottoman period tell about dining habits? How similar or dissimilar does this repertoire appear compared to earlier (Byzantine and Frankish) contexts? Evidence is taken from published and unpublished material from the Athenian Agora (studied on behalf of the NWO funded VIDI research project "*Material Culture, Consumption and Social Change: New Approaches for Understanding the Eastern Mediterranean during Byzantine and Ottoman Times*"). Here habitation and activity continued, albeit with certain shifts, throughout the Medieval and Early Modern periods.

### **Investigating Cypriot and Levantine Cooking Wares in Frankish Cyprus**

**R. Smadar Gabrieli** (The University of Sydney, Sydney), **Yona Waksman** (Laboratoire de Céramologie CNRS Lyon, Lyon), **Alessandra Pecci** (DiBest Università della Calabria - ERAAUB, Cosenza)

By the end of the 12th century, Cyprus was annexed to the Crusader Levant. One of the visible effects this change in the status of the island had in the archaeological record, is an intensive exchange of ceramics between island and mainland. There is little doubt that Cyprus became part of the regional distribution networks of the Crusader Levant as well as being integrated into the international trade network between Europe and the Levant. Significantly, in addition to the circulation of glazed table wares between Island and Mainland, there was a one-way traffic of cooking wares into Cyprus from the Levant. This import has an impact on the local assemblage in two significant ways: the imported deep pots and shallow pans were glazed on the inside, and therefore with a non-stick surface, and the proportion of open, shallow pans in the assemblages is far higher than in the locally produced wares. In the framework of the POMEDOR project, on-site examination of visible use marks and quantification is combined with archaeometric approaches, using chemical analyses to investigate provenances and organic residues, in an attempt to establish regional trade patterns and identify shifts in foodways.

### **A Spanish Hodge-Podge and Some Heron on the Side. Dietary Practices on the Late 16. Century Castle of Middelburg-in-Flanders (Belgium)**

**Maxime Poulain** (Historical Archaeology Research Group - Ghent University, Ghent), **Jan Baeten** (Centre for Archaeological Sciences & Centre for Surface Chemistry and catalysis - KU Leuven, Leuven), **Wim De Clercq** (Historical Archaeology Research Group - Ghent University, Ghent)

During excavations in 2002-03 two garderobe chutes were uncovered on the castle site of Middelburg-in-Flanders. Considerable amounts of ceramics, pollen, fruits, seeds, and animal remains were recovered, dating to the late 16th and

early 17th century. In this period, the town had become a pawn in the Eighty Years' War and the castle had lost its elite character as various military units and poorer families moved in. This paper discusses how food and the ceramics in which it was prepared reflect the dietary practices of the different social groups inhabiting the castle. Despite the breakdown of the established networks in this time of war, social distinctions seem to have been maintained, as is clear from the high frequency and variety in the consumption of hunted birds. However, it is yet to be seen whether the recent organic residue analysis of food crusts preserved in several cooking vessels confirms this picture. Concluding, in combining the ceramic, zoological and botanical data, this paper unveils the changing dietary practices in times of war.

### **An (Urban) Cooking Revolution in the Low Countries?**

**Roos van Oosten** (Leiden University, Leiden)

Within medieval pottery studies in the Low Countries the adage 'form follows function' is an implicit assumption among archaeologists. Following this traditional approach the ceramic spectrum shows a gradual 'cooking revolution'. During the Early Medieval period cooking pots displayed predominately flat bottoms whereas during the Carolingian period a lenticular shape dominated the scene. As soon as towns came into being in the Low Countries (c.1200), legs were added to cooking pots and more strikingly frying pans were distributed on a large scale, especially in the coastal provinces. From the Early Modern Period (c.1550) onwards the cooking pot turned into a wide shape and cooking pots had flat bottoms once more. At the same time ceramic frying pans disappeared completely. The central question in this presentation is how, when and why such morphological transformations took place. Do these morphological changes merely reflect that the (central) hearth was replaced by an oven or is an alternative interpretation, following Daniel Miller's *Artefacts as categories*, possible?

### **The Journey of Taste: Coffee and Coffee Cups**

**Filiz Yenişehirlioğlu** (Koç University, Istanbul)

The first coffee house was opened in Istanbul in the 16th century by two trades men coming from Damascus. This did not lead to a creation of a new type of recipient but multi functional traditional small cups continued to be used. The form of both the cup and the pot in which the coffee was made changed parallel to the developments in social life through out the centuries. On the other hand, the introduction of coffee in Europe was widely spread leading to the creation of new type of recipients. These latter influenced the coffee cup production in the Ottoman Empire. The findings from the archaeological excavation of Ottoman ceramics kilns of Tekfur Palace in Istanbul and the Eyup Potters' area will be used as a reference to follow up these relations.

## **POSTERS**

### **Around Kitchen. Ceramic and Metallic Kit through Archival and Archaeological Sources in Abruzzo in the Early Modern Period**

**Van Verrocchio** (Centro Ligure per la storia della Ceramica di Albisola - Savona, Soprintendenza Archeologica dell'Abruzzo - Chieti, POMEDOR Network, Savona)

Ceramic products are the main discovery of an archaeological dig and contribute significantly to the reconstruction of the kitchen and table kit items in use within homes. This figure is, however, partial escape almost as metal objects, and to a lesser extent those of glass, who were also in use in tables and kitchens. Thanks to archival research, and especially to the post-mortem inventories of homes, it is possible to integrate the archaeological record in an attempt to reconstruct the entire allocation of items for the table and kitchen. This paper aims to illustrate the findings of some researches in the Abruzzo coast (Central Italy) in the Early Modern age.

### **Animals for Food in the Medieval Urban Settlement of Old Orhei (Republic of Moldavia): Archaeozoological Data**

**Luminita Bejenaru** (Alexandru Ioan Cuza University of Iași, Faculty of Biology, Iași), **Simina Stanc** (Alexandru Ioan Cuza University of Iași, Faculty of Biology, Iași), **Ludmila Bacumenco-Pîrnău** (Institute of Cultural Heritage, Academy of Sciences of Moldova, Chișinău), **Gheorghe Postică** (Moldova State University, Chișinău), **Sergiu Musteață** (Ion Creangă Pedagogical State University, Chișinău)

The medieval urban settlement of Old Orhei (XIVth-XVIIth centuries) is placed in the Raut River Valley, at 60 km to the North-East of the city of Chișinău (Republic of Moldova). The archaeological and archaeozoological studies concerning the medieval levels of the archaeological complex Old Orhei show the diversity of animal resources exploited there through animal husbandry, hunting and fishing. The consumers of animal products varied by their ethnicity especially. Thus, if in the period of Mongolian occupation (Golden Horde) the main domestic species used in alimentation were sheep/goat, cattle and horse, later – after Mongolian retreating, the livestock of the local economy was mainly represented by cattle and pig.

The hunting and the fishing are less represented in the archaeozoological samples. Among the wild mammals, the red deer and roe deer are the most frequent as number of remains. The presence of the fallow deer, a thermophile species, could indicate the existence of a hunting reservation in the proximity of the Old Orhei. The analysis of the fish remains designate species with high alimentary value such as the sturgeons. This study was supported by the Romanian research program CNCS–UEFISCDI PNII-RU-TE-2011-3-0146.



## **T04S012 - REDEFINING CONFIGURATIONS OF URBAN SETTINGS: CENTERS OF SOCIAL AND ECONOMIC ACTIVITY IN THE EURASIAN STEPPE**

**Organizers:** **Bryan K. Miller** (Universität Bonn, Vor- und Frühgeschichtliche Archäologie, Institut für Kunstgeschichte und Archäologie, Bonn), **James A. Johnson** (University of Pittsburgh, Pittsburgh)

The development of urban centers associated with large scale production, exchange, and habitation are often deemed incompatible with societies that have mobile components, or are engaged in greater mobility related to pastoral production. Nevertheless, numerous Eurasian steppe societies have established urban sites equivalent to those associated with settled agricultural groups. The goal of this session is thus to reexamine concepts of urbanism, urbanization and urban settings in relation to societies that have mobile or semi-mobile components. The papers in the session address economic and social activities that occurred at, or in the vicinity of, permanently constructed urban sites in the steppe. We also consider these sites in the context of long-term changes and broader regional patterns. As the study of urbanism in the Eurasian steppe is still in its infancy, this session will greatly augment our understandings of the different components of these sites and their multiple functions and uses. This is especially important as the broad spectrum of mobilities, seasonal occupations, and pastoral strategies might affect the configurations and functions of permanent centers. This session is important, as discussions of pastoral societies and mobile groups have infrequently contributed to the broader comparative analyses of urban developments.

### **ORAL PRESENTATIONS**

#### **A Tale of Two Cities**

**James A. Johnson** (University of Pittsburgh, Pittsburgh)

Urbanism is an integral component in the studies of complex societal developments, in particular of the world's "great" civilizations. Only recently have researchers begun to study urbanism in smaller scale, low density agrarian societies. Despite this exciting new field of investigation, the study of urbanism among mobile groups has escaped notice. This paper acts as an introduction, exploring the potential for studies of urbanism among small scale mobile societies, such as pastoralists. This introduction offers a brief examination of some of the theoretical possibilities for urbanism, from expansive urbanism to issues dealing with materiality and temporality. Using the large scale Iron Age (ca. 650 – 300 BC) settlement complex of Bel'sk located in east-central Ukraine and the Middle Bronze Age Sintashta (ca. 2100 – 1700 BC) enclosed settlements located in the southern Urals region of the Russian Federation as comparative case studies I highlight the potency of urbanism for studies of societal developments in Eurasian prehistory.

#### **Contradictions and Limits of Urbanism in the Eurasian Steppe**

**Ludmila Koryakova** (Institute of History and Archaeology of RAS, Ekaterinburg)

The concept of early urbanism used in the context of Eurasian steppe is not of clear meaning. In the academic environment, there is a variety of its definition and judgments relating to degree of this phenomenon existence in the area in question. All theories can be reduced to two hypotheses. 1) In the steppe, the urbanism is rather late occurrence, related, at best, to the Iron Age. 2) The elements of urbanization/proto-urbanization appear in the Bronze Age yet. The latter can be brightly exemplified by the Sintashta culture of the Southern Urals (2100-1800 BCE). Its fortified settlements, which are concentrated in the steppe zone of the Southern Urals, are interpreted as proto-towns, endowed with high symbolic and social status. This paper is to examine above mentioned hypothesis in the light of recent discoveries and new materials obtained in the course of multidisciplinary research (Krause&Koryakova 2013). The comparison with the Early Iron Age will be also done.

#### **The Emergence of Urban Settings in the Xiongnu Steppe Polity**

**Bryan K. Miller** (University of Bonn, Bonn)

While scholars have framed discussions of urban centers in Inner Asia around prominent cities of the medieval Uighur, Khitan and Mongol empires, the first walled sites, which appeared during the Xiongnu empire, have yet to be significant components of these discussions. Preliminary investigations of these walled sites and their environs demonstrate evidence of large-scale permanent establishments of ritual arenas, places of habitation, and production facilities. Rather than limit our understanding of urban settings to the features within walls, this paper proposes an application of the notion of low-density

urbanism to steppe pastoral societies in order to understand the earliest foundations of large-scale centers of social, ritual, and economic activity. The valley of Möngönmor't as a whole, in which two contemporary walled constructions as well as dispersed remnants of habitation and workshops, is thus taken to be an entire "urban center" of the Xiongnu steppe empire.

### **Urbanism in the Oasis? Walled Sites and Settlement in Late Iron Age Chorasmia**

**Michelle Negus Cleary** (University of Sydney, Sydney)

Any definition of urbanism needs to be regionally and temporally appropriate, and the late Iron Age fortified enclosure sites of the oasis of Chorasmia in south-western Eurasia are a good case in point. Although these fortified sites were clearly important installations within this Central Asian oasis settlement pattern, the Chorasmian kalas do not easily fit with urban definitions from the Near or Far East. The archaeological evidence from these Antique period walled sites does not support the idea that these were permanent, nucleated settlements, nor do they exhibit the range of institutions or activities that distinguish a city from other settlements. Although these sites were surrounded by extra-mural settlements, they were very low in density and represent a small population, suggesting that there may have been a significant portion of the population that did not reside in permanent housing and that may have been more mobile, employing multiple resource subsistence strategies including pastoralism. Recent work by scholars in the steppe areas of Eurasia have suggested alternative and more inclusive urban models where fortified sites were important nodes constructed in the landscape by largely pastoral polities. This type of model better fits the evidence from late Iron Age Chorasmia, and this paper will present an overview of the archaeological evidence from Chorasmian walled sites, exploring alternative concepts of settlement, habitation, and urbanism.

### **Cities for Whom? Liao Administrative and Production Centers in Chifeng, Inner Mongolia, China**

**Gwen Bennett** (McGill University, Montréal)

The Kitans ranged around modern China's Great Wall and across Mongolia, established the Liao Empire in 907, and controlled a continental scale realm until they were conquered in 1125. Since the Kitans themselves left few records, and the Chinese records focus on elite political and military events, we know very little about their society and ways of life. Rich tombs, pagodas and walled cities located across the northern landscape materially document elite Kitan life. Recent research has looked at Liao cities in the Shira Murun River Valley in Chifeng, Inner Mongolia and suggested that they were constructed as statements of political legitimacy without regard for ecological viability. Liao cities in southern Chifeng exhibit numerous contrasts with the northern cities that suggest that their establishment and existence had different goals. This paper will argue that cities in the two regions originated from different roots that contribute to differences in their appearance, history of use, and potentially even the populations that inhabited them. Fieldwork results from the Liao prefectural town of Songshanzhou in the southern Chifeng region, the probable market town for wares from the Gangwayao Kiln Complex, will be used to illustrate these arguments.

### **Horse for Courses: Diversity and Variety in Urban Solutions of Early Medieval Steppe Peoples**

**Irina Arzhanseva** (Institute of Ethnology and Anthropology RAS, Moscow), **Heinrich Härke** (Tübingen University, Tübingen)

Our case studies demonstrate that steppe routes to urbanization depended on various factors including topography, economy, local populations, and neighbouring civilizations. Outcomes and success varied accordingly. The Uighur Empire built in Tuva (Russia) a series of defended sites which may also have had a quasi-urban role. But the best-studied site, Por-Bazhyn, remains a conundrum. Built on the Chinese model of an 'ideal town', it existed for a short period in the 8th century. It has extensive architectural remains, but no occupation layer; and it was destroyed by an earthquake after it had already been abandoned. In the Syr-Darya delta (Kazakhstan), new fieldwork and radiocarbon dates at Dzhanakent suggest that the steppe polity of the Oguz used existing settlements of sedentary populations to create fully urban centres from the 9th century onwards. Design and lay-out suggest a Khorazmian model, and pottery finds support this link. Written sources identify Dzhanakent as the seat of the Oguz ruler. The Alans of the North Caucasus built proto-urban fortifications when they adopted a sedentary lifestyle there. Gornoe Ekho in the Kislovodsk Basin (Russia), built in the 7th century, shows dense occupation and evidence of urban functions (including elite residence) while controlling a branch of the Silk Road.

### **Ukek – An Early Golden Horde City in the Lower Volga Steppe**

**Dmitriy A. Kubankin** (Saratov Regional Museum of Local Lore, Saratov)

Ukek, the earliest Golden Horde city in the Lower Volga region, was built at crossing of the river on the way to Khan's summer residence placed in steppe on the left bank of the Volga. Presence of Khan's residence was a strong stimulus for rapid growth and development of the city as well as countryside in its vicinity. There had been almost no traditions of sedentary and urban life in the Lower Volga region and the city was being populated mostly by people from neighboring areas of Mongol state. Thus the city's population was inevitably both multiethnic and multi-religious with prevalence of Islamic component. Numerous artifacts originating from China, Khorezm, Iran, Byzantium, Egypt, Syria evidence that trade was fairly

developed and intense in the city. We found and excavated a part of Christian quarter of the city dated to 1270-1360 AD. According to our findings it is thought to be populated mostly by people that came there from Old Russian lands. Members of this putative Christian community were definitely not slaves or beggars, at least not all of them. Finding of basement of a stone Christian temple with bas-reliefs and murals suggests a certain level of prosperity of the people who built it.

### **Necropolises of the Golden Horde City of Ukek (Lower Volga, XIII-XIV cc. AD) as a Source of Data on Its Social and Ethnic Structure**

**Dmitriy A. Kubankin** (Saratov Regional Museum of Local Lore, Saratov), **Andrej A. Evteev** (Saratov Regional Museum of Local Lore, Saratov)

Ukek is one of the earliest cities found by Mongols in the Lower Volga region – domain of Khan of the Golden Horde. The necropolises of the city provide valuable information of its ethno-religious history. A Christian cemetery hasn't been found so far in Ukek though Christian population of the city was probably quite numerous. Most of medieval cemeteries found at the site are Islamic with fairly unified burial customs with just rare cases of remnants of paganism. But there are substantial differences in social status of people buried in different necropolises. In the South-West necropolis several elite pagan burials containing expensive grave goods and probably related to Mongols were excavated. One of the biggest Golden Horde mausoleums (273 m<sup>2</sup>) known to date was also found there. In contrast, the North-West necropolis while being purely Islamic probably represents lower social class. Craniological samples from the site tend to confirm archeological data on ethnical and cultural heterogeneity of the city's population. A sample collected from elite burials excavated at different places of the former city's area reminds population of other big Golden Horde's cities from the Lower Volga. But a sample from North-West necropolis is much closer to medieval Finno-Ugrian and Slavonic groups.

### **At the Edge of the Steppe and the Edge of Modernity: Medieval Urbanism in Armenia**

**Kathryn J. Franklin** (University of Chicago, Chicago)

The archaeological study of mobility in Eurasia has taken long strides towards undermining the predominant association of civilization with a sedentary urbanism, an historical and anthropological concentration of civility within gates intended to keep mobile lifeways outside. Medieval archaeology in the steppe and elsewhere grapples with a corollary marginalization rooted in historiographical and philosophical construction of 'the medieval' within western scholarship. This predominant and pervasive narrative premises late medieval urbanism on an increased social and physical mobility, which is defined in contradistinction to a prior, primitive feudal rootedness. This paper, focused on medieval Armenia and its role in Soviet historiography, explores the ongoing ramifications of the medieval urban narrative as the medieval is persistently evoked as a precursor to capitalism/modernity, and the feudal is deployed as a category for the primitive, uncivilized or nonmodern. By exploring social production in the town, country, and points in between in mobile late medieval Armenia, this paper will interrogate how medieval sociality was tied to imaginations of place as well as to the dynamism of movement, and how cities were one part of a sociopolitical landscape that also included villages, farms, gardens, roads, and faraway lands.

## **POSTER**

### **Ufa II – Medieval Urban Site in the Southern Urals**

**Tatiana A. Leonova** (Bashkir State Pedagogical University, Laboratory of Methodology and Methods of Humanitarian Research, Ufa), **Iia A. Shuteleva** (Bashkir State Pedagogical University, Laboratory of Methodology and Methods of Humanitarian Research, Ufa), **Nikolai B. Shcherbakov** (Bashkir State Pedagogical University, Laboratory of Methodology and Methods of Humanitarian Research, Ufa)

Archeological investigations identified big urban sites before entering to Russian State XVI c. These urban sites were developed by population characterized by sufficient mobility. Population mobility was confirmed by osteologic materials analysis. Small cattle prevails, there are also camel, donkey bones. On the territory of forest-steppe Southern Transurals there are several urban sites known, that existed since the end of the Early Iron Age and all Medieval Period. One of them is urban site Ufa II. From 2006 up to 2013 this site was investigated by N. Mazhitov, F. Sungatov, A. Sultanova, R. Ismagilov, I. Shuteleva, N. Shcherbakov. Collection of artifacts from site Ufa II is various. It is divided into groups: ceramics, metal-lurgic inventory, articles made of bones, jewelry. In the layers of Ufa II site there are disk-shaped amber beads with incised decoration which are also met in the Danube area, as well as in Scandinavia and the Black Sea region. Radiocarbon dating, paleopedology and osteologic analyses were held in the site, methods of technical and process analysis of ceramics were applied. All these facts prove connection of Ufa II population beginning with Migration Period and up to the Golden Horde period.





## **T04S013 - BIOGEOCHEMICAL APPROACHES TO THE ARCHAEOLOGY OF NORTHERN HUNTER-GATHERERS**

**Organizers:** **Andrzej W. Weber** (Department of Anthropology, University of Alberta, Edmonton), **Rick J. Schulting** (Research Laboratory for Archaeology and the History of Art, University of Oxford, Oxford)

Most of the Earth's landmass is located in the northern hemisphere, where arctic, boreal, and sub-boreal environments dominate much of Eurasia and North America, circumnavigating the globe. Archaeologically, this vast territory is characterized by long sequences of hunter-gatherer adaptations which in many places retained their viability until historical times. Another common feature of northern hunter-gatherers is that aquatic resources, whether freshwater or marine, often played an important role in subsistence strategies. Patterns of culture change, dynamism, resilience, and sustainability are all subjects of continued research. Environmental conditions favour preservation of organic materials such as human and animal osteological remains, organic residue on pottery, hides, and textiles. This, in turn, allows for the application of various new methods in the archaeological sciences, including biogeochemical techniques. Consequently, research on northern hunter-gatherer adaptations has recently seen a period of dynamic growth. The session will present current biogeochemical research on northern hunter-gatherers in Eurasia and North America with an emphasis on novel techniques, integrative approaches, and modelling of hunter-gatherer adaptive strategies and behaviour. Relevant studies from other regions are welcome for comparative purposes. We anticipate broad participation of scholars from Europe, North America, and Northeast Asia.

### **ORAL PRESENTATIONS**

#### **Exploring the Potential of Lipid Residue Analyses for the Study of Arctic Pottery: A Case Study from Two Precontact Alaskan Sites**

**Thomas Farrell** (Arctic Centre, Groningen Institute of Archaeology, University of Groningen, Groningen), **Ana Jorge** (University of Aberdeen, Department of Archaeology, School of Geosciences, Aberdeen), **Kate Britton** (University of Aberdeen, Department of Archaeology, School of Geosciences, Aberdeen), **Peter Jordan** (Arctic Centre, Groningen Institute of Archaeology, University of Groningen, Groningen), **Rick Knecht** (University of Aberdeen, Department of Archaeology, School of Geosciences, Aberdeen), **Oliver Craig** (University of York, Department of Archaeology, York)

The appearance, spread, and function of pottery in the North American Arctic has long been the focus of archaeological debate, yet lipid residue analyses aimed at gaining direct biomolecular insight into the nature of Arctic pottery residues are rare. This talk will explore the potential and limitations of employing lipid residue analyses in the study of Palaeoeskimo and Eskimo pottery use by presenting results from two Alaskan sites - the Norton Palaeoeskimo seal-hunting site of Nash Harbor and the broader subsistence spectrum Yup'ik Eskimo site of Nunalleq. Lipid residue data from both sites links pottery directly to the processing and/or consumption of marine resources. These preliminary results demonstrate a substantial degree of consistency of pottery use among Arctic hunter-gatherer groups regardless of local subsistence frameworks. Ultimately, this study highlights the potential for lipid residue analyses to contribute significantly to site-based understandings of Arctic pottery use and resource exploitation, as well as the impact that more substantive datasets may have on broader questions surrounding the appearance and persistence of pottery traditions among Arctic hunter-gatherers.

#### **The Bioarchaeology and Isotope Chemistry of Dogs at a Pre-Contact Alaskan Site**

**Ellen McManus** (University of Aberdeen, Aberdeen), **Rick Knecht** (University of Aberdeen/University of Alaska Fairbanks, Aberdeen), **Keith Dobney** (University of Aberdeen, Aberdeen), **Kate Britton** (University of Aberdeen/Max Planck Institute for Evolutionary Anthropology, Aberdeen)

Historically and ethnographically dogs have been a crucial resource for humans living in arctic and subarctic environments, where their use has ranged from traction to hunting aids, protection, and even sometimes for food. The site of Nunalleq, on the Yukon-Kuskokwim Delta, is the focus of a collaborative project by the University of Aberdeen and the local Yup'ik village corporation. The permafrost conditions at this site have resulted in the survival of a range of organic materials with great potential for bioarchaeological analysis. The presence of a large number of dog remains allows for the exploration of the relationship between humans and dogs at Nunalleq, and an investigation of the role of dogs in human subsistence and resilience. This paper will present results from an integrated stable isotope ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) and zooarchaeological analysis of dog bone, fur and claw. It will look at the role of dogs in human hunting and gathering, both as consumers and as potential food sources, and will explore how humans utilized dogs to survive and thrive in this environment.

#### **Piecing Together the Archaeological and Ethnographic Records of High-latitude Hunter-gatherers Using Stable Isotopic Data**

**David R. Yesner** (University of Alaska Anchorage, Anchorage)

Although sea foods often tended to dominate the subsistence of high-latitude hunter-gatherers of the recent past in the Americas and circum-Pacific region, this was not necessarily the case in earlier times. Climatic and environmental change



as well as technological evolution often resulted in movements of peoples and changes in subsistence over time. Some of these changes can be detected through archaeofaunal analysis, but others can be more easily understood through the analysis of stable isotopic signatures in human remains. Using a combination of archaeofaunal and stable isotope data from a number of case studies (Neolithic cultures of the Russian Far East, mid-to-late Holocene cultures of Alaska, and late prehistoric cultures of Argentine Tierra del Fuego) it is possible to test hypotheses concerning the time depth of subsistence practices of historically and ethnographically-known high-latitude hunter-gatherers, particularly the relative importance of marine v. terrestrial foods, with the latter including large game (cervids and camelids). As far as marine foods are concerned, differentiating between sea-mammal, seabird, fish, and shellfish consumption is more problematical, as it includes questions about midden analysis, about differentiating isotopic signatures of marine prey species, and about processes involved in the fractionation of stable isotopes during protein and lipid metabolism.

### **Maritime Adaptations and Dietary Variation in Prehistoric Western Alaska: Stable Isotope Analysis of Permafrost-Preserved Human Hair**

**Kate Britton** (University of Aberdeen/Max Planck Institute for Evolutionary Anthropology, Aberdeen), **Rick Knecht** (University of Aberdeen/University of Alaska Fairbanks, Aberdeen), **Ellen McManus** (University of Aberdeen, Aberdeen), **Olaf Nehlich** (University of British Columbia and MPI-EVA, Vancouver), **Richard S. Davis** (Bryn Mawr College, Bryn Mawr), **Michael P. Richards** (University of British Columbia and MPI-EVA, Vancouver)

The reconstruction of diet and subsistence strategies is integral to understanding early human colonisations and cultural adaptations, especially in the Arctic - one of the last areas of North America to be permanently inhabited. However, evidence for early subsistence practices in Western Alaska varies, particularly with regards to the emergence, importance and intensity of sea mammal hunting. Here we present stable carbon and nitrogen isotope data from permafrost-preserved human hair from two new prehistoric sites in Western Alaska, providing a direct measure of diet. The isotope evidence indicates a heavy reliance on sea mammal protein amongst the earlier Norton-period group (1750±40 cal BP). In contrast, analysis of the more recent Thule-period hair samples (650±40 cal BP; 570±30 cal BP) reveals a more mixed diet, including terrestrial animal protein. These analyses provide direct evidence for dietary differences amongst Alaska's early Eskimo groups and confirm the antiquity of specialised sea mammal hunting and procurement technologies in this area. The results of this study have implications for our understanding of human adaptation to maritime and high latitude environments, and the geographical and temporal complexity in early Arctic subsistence.

### **Hunter-gatherers in a Northern "Maritime" Zone: A Comparison of Stable Carbon and Nitrogen Isotopes from Baikal and Hokkaido**

**Rick J. Schulting** (University of Oxford, Oxford), **Minoru Yoneda** (University of Tokyo, Tokyo), **Andrzej W. Weber** (University of Alberta, Edmonton)

In this paper we examine large-scale variability in hunter-gatherer populations in two different northern Eurasian contexts. The first is western Lake Baikal in southern Siberia, with a large sample of human burials from the Early Neolithic to the Early Bronze Age, though with a notable intervening gap in the Middle Neolithic. The second is the northernmost Japanese island of Hokkaido, with material spanning the mid- to late Holocene, from the Early Jomon to the 18th century. In both cases there is a variable but generally marked reliance on aquatic resources, though these are freshwater in the case of Baikal, and marine in the case of Hokkaido. We also discuss results from some distance from the lakeshore/coast, in an effort to look at the effective limits of aquatic adaptations. An important question underlying the analysis is the nature of hunter-gatherer territoriality.

### **Geochemical Approaches to the Examination of Middle Holocene Hunter-Gatherers in the Baikal Region of Siberia: Review of Recent Advances**

**Andrzej W. Weber** (University of Alberta, Edmonton), **Christopher Bronk Ramsey** (University of Oxford, Oxford), **Rick J. Schulting** (University of Oxford, Oxford), **Ian Scharlotta** (ASM Affiliates, Carlsbad)

Biogeochemical techniques have played important role in the long-term research on middle Holocene hunter-gatherer strategies in the Baikal region of East Siberia conducted by the Baikal Archaeology Project. Over the last 20 years, a few hundreds of human skeletons have been dated by radiocarbon and tested for carbon and nitrogen stable isotope ratios, strontium isotope ratios, and trace element concentrations and their DNA characteristics have been described too. Furthermore, similar geochemical work has been conducted on a range of environmental samples to track bioavailability of various geochemical tracers. This paper reviews the most recent advances in this work. The focus is on the following: (1) assessment of the freshwater reservoir effect; (2) understanding of hunter-gatherer diets using mixing models; (3) micro-sampling of human skeletal remains (bones and teeth); and (4) integration of geochemical data with other categories of archaeological evidence.

## **Differentiating Migration and Mobility: Comparing the Spatial and Temporal Resolution of Bulk and Micro-Sampled Geochemical Data of Middle Holocene Hunter-Gatherers**

**Ian Scharlotta** (ASM Affiliates, Carlsbad)

The development of analytical techniques associated with the individual life history approach to reconstructing prehistoric patterns of diet and mobility have produced significant changes in the potential information contained in a single skeleton. Determining where an individual was on the geographic landscape during multiple phases of life, as opposed to the geochemical landscape of childhood and death, is key to differentiating between patterns of migration and smaller scale movements undertaken during life. Advances in micro-sampling capabilities have enabled multiple data points to be produced on human teeth and bones, expanding the total number of data points and the resolution with which researchers can examine an individual's life. Combined with detailed surveys of biogeochemical variation in the landscape, the improved historical resolution translates into an ability to examine the provenance and track the movements of an individual through different stages in their life. In the context of Early Bronze Age hunter-gatherer groups in Cis-Baikal, Siberia, a comparison of bulk versus micro-sampling strategies has altered understanding of the level of mobility and interaction.

## **Hunter-Gatherer Mobility Patterns and the Late Neolithic-Early Bronze Age Political Transition at Lake Baikal, Siberia: Evidence from Strontium (87Sr/86Sr) Isotopes**

**Ben A. Shepard** (University of California, Los Angeles)

This presentation investigates changes in mobility patterns among hunter-fisher-gatherers of the middle Holocene Lake Baikal region of Southern Siberia (Russian Federation). We present results of the first large-scale comparative study of stable strontium (87Sr/86Sr) isotopic data from the region's Late Neolithic (4000-3000 cal BC) and Early Bronze Age (3000-2000 BC) periods. These analyses were conducted on human tooth enamel samples from multiple cemeteries situated in two relatively densely populated areas on the northwest coast of Lake Baikal – the Little Sea region and the Upper Lena River Valley. These data enable us to test the hypothesis that mobility patterns shifted along with political economic organization at the beginning of the Early Bronze Age as communities became increasingly interconnected over greater distances (“networked”).

## **Seal Exploitation in the Baltic Sea during the Mid- and Late Holocene**

**Aikaterini Glykou** (Stockholm University, Stockholm), **Gunilla Eriksson** (Stockholm University, Stockholm), **Kerstin Lidén** (Stockholm University, Stockholm)

Harp seal, grey seal and ringed seal were apparent during different stages of the Holocene in the Baltic Sea region and intensively exploited by prehistoric humans as is evident by the presence of seal bones at numerous prehistoric occupation coastal sites. Harp seal is now extinct in the Baltic Sea and therefore the occurrence of this cold adapted species during a warm climate phase in this region has led to controversy in the interpretation on why it was present and why it disappeared. The alternative explanations to a change in seal population dynamics are related to palaeoenvironmental changes affecting their ecology e.g. feeding and breeding strategies, as well as interaction between man and environment e.g. different cultural frameworks and changes in exploitation patterns. To solve this middle and late Holocene issue in the Baltic Sea we undertake a systematic interdisciplinary study on the exploitation patterns of seals, in particular harp seals by applying up-to-date archaeological, geochemical, and archaeozoological methods. By applying stable isotopic analysis we aim to address the following issues a) exploitation of seals and seasonal hunting b) localization of breeding grounds and c) shifts in migration and foraging patterns of harp seals.

## **Moving Mesolithic Hunters? An Isotopic Examination of Hunter-Gatherer Mobility at Skateholm, Sweden**

**T. Douglas Price** (University of Aarhus, Aarhus), **Lars Larsson** (Lund University, Lund)

The concept of mobile hunters and sedentary farmers has been a fixture in the minds of archaeologists for decades. But like all assumptions, this one needs to be thoroughly evaluated. There is generally convincing evidence, based largely on faunal remains, that the late Mesolithic hunter-gatherers of southern Scandinavia used the same places for long periods. Ertebølle faunal assemblages often reveal evidence for three seasons. Springtime indicators are absent at most sites. Sedentary settlement is difficult to determine. We take another direction in this study, examining the mobility of the individuals buried at these settlements. Isotopic ratios of strontium and oxygen in tooth enamel have the potential to reveal geographic origins. Our samples for this study come from the late Mesolithic site of Skateholm on the south coast of the Swedish province of Scania. A large cemetery was excavated here in the 1970s. Isotopic ratios have been measured in the tooth enamel of a number of these burials to examine variation and the presence of possibly non-local individuals. Southwestern Scania is a good location for such a study as the background isotopic ratios change over fairly short distances offering good potential to identify non-local burials at the site.

## Environmental Issues of the Neolithic Peat Site Podolye 1 in the Eastern Baltic

**Tatyana M. Gusentzova** (Research Autonomous Non-commercial Organization “Scientific and Research Institute for Cultural and Natural Heritage”, Saint-Petersburg), **Margarita A. Kholkina** (Saint-Petersburg State University, Saint-Petersburg), **Tatyana V. Sapelko** (Limnological Institute RAS, Saint-Petersburg), **Anna V. Ludikova** (Limnological Institute RAS, Saint-Petersburg), **Marianna A. Kulkova** (Department of Geology and Geoecology, Herzen State Pedagogical University, Saint-Petersburg), **Darja V. Ryabchuk** (Karpinsky Russian Geological Research Institute, VSEGEI, Saint-Petersburg), **Aleksander J. Sergeev** (Karpinsky Russian Geological Research Institute, VSEGEI, Saint-Petersburg)

Site Podolye 1 is located near the southern shore of Lake Ladoga. The forms of paleorelief and the bed of paleolithic pond, on the banks of which people lived in the Stone Age, were determined with the help of integrated geological and geophysical studies using ground-penetrating georadar and geological drilling. Wooden structures – hammered stakes, fishing weels, wrapped in birch bark – were preserved on the site in the layer of peat in situ. Earthen structures with the remains of stone fireplaces, disintegrated clay vessels, implements of flint, quartz and slate, amber pendants, ochre, animal bones, many fish vertebrae were found here. Chronology of the monument is based on the correlation with the paleogeographic events confirmed data of the palynological, diatom and geochemical analysis of sediments and a series of radiocarbon dates. The result is a dynamics of paleoenvironment between the Atlantic and Subatlantic periods. The bulk of the materials belongs to the second half of the Sub-Boreal period dated  $4338 \pm 70 - 4229 \pm 70$  BP. These investigations were supported by RFBR grant 13-06-00548.

## Kinship, Diet and Movement among Mesolithic Hunter-Gatherers in Light of Laboratory Analysis of Ritual Skull Depositions at Kanaljorden, Motala, Sweden

**Fredrik Hallgren** (The Cultural Heritage Foundation, Stockholm), **Elin Fornander** (The Cultural Heritage Foundation, Stockholm)

Archaeological fieldwork in 2009–2013 has uncovered an unusual ritual hunter-gatherer context with wetland depositions of human remains at the Mesolithic site Kanaljorden, Motala, Sweden. A small lake was used for complex ritual activities that included the construction of a stone packing at the bottom of the lake. Select human bones – mostly skulls – from a dozen individuals were then deposited on the stone-packing. Two of the skulls were mounted on wooden stakes still embedded in the cranium. Beside human bones, the finds also include artefacts of bone, antler, stone and wood, as well as animal bones and botanical remains. The context is  $^{14}\text{C}$ -dated to c. 5800 cal. BC. Ongoing laboratory analysis (aDNA, isotopes, etc.) give insight into the relationship, diet and movement of the interred individuals.

## Stone-Age Subsistence Strategies at Lake Burtneiks, Latvia

**John Meadows** (Centre for Baltic and Scandinavian Archaeology-ZBSA, Leibniz Kiel University, Kiel), **Valdis Bērziņš** (Institute of Latvian History at the University of Latvia-LVI, Rīga), **Harald Lübke** (Centre for Baltic and Scandinavian Archaeology-ZBSA, Schleswig), **Ulrich Schmölcke** (Centre for Baltic and Scandinavian Archaeology-ZBSA, Schleswig), **Ilga Zagorska** (Institute of Latvian History at the University of Latvia-LVI, Rīga)

Stable isotope results from human remains from the long-lived prehistoric cemetery at Zvejnieki, on Lake Burtneiks in northern Latvia, suggest that the Mesolithic and Neolithic foragers buried there depended, to varying degrees, on the consumption of freshwater fish, but that fish consumption may have declined over time (Eriksson et al. 2003; Eriksson 2006). We reconsider these patterns in the light of new isotope data from Rīņukalna, a later Neolithic shell midden at the outlet of Lake Burtneiks, from which a rich fishbone assemblage has been analysed (Bērziņš et al. in press; Schmölcke et al. in prep). We propose isotopic baseline values for the Lake Burtneiks area, using the combined faunal and fishbone stable isotope data from the two sites, which are less than 10km apart. From these values, diets for each individual are then calculated, using the Bayesian dietary mixing model software, FRUITS (Fernandes et al. 2014). Although their baseline isotope values are quite distinct, we see large uncertainties in the potential contribution of each food group to individual diets, and no clear temporal trends. Rather, there appears to be significant variability within each period, which may be due to individual mobility rather than individual dietary preferences.

## Contact, Co-Existence, and Conciliation? An Example of Cultural Contact between People of the Hunting-Gathering Pitted Ware Culture and People of the Funnel Beaker Culture

**Gunilla Eriksson** (Stockholm University, Stockholm), **Rachel Howcroft** (University College Dublin, Dublin), **Kerstin Lidén** (Stockholm University, Stockholm)

We provide an example of long-lasting co-existence and interaction between people of two culturally distinct groups in Neolithic Sweden at the Baltic coast: the incipient farmers of the Funnel Beaker Culture and the seal hunters of the Pitted Ware Culture, respectively. Despite geographical proximity and evident contacts with people of the Funnel Beaker (and

later Corded Ware) Culture(s), the Pitted Ware group as a whole were clearly and actively maintaining their own cultural identity, as evidenced by material culture, burial customs and diet, during more than a millennium. Stable isotope analysis of a significant number of individuals from coastal sites in the Baltic Sea nevertheless demonstrate cases of individuals who changed their diets during the course of life, suggesting cultural contacts and influence from the other group. A possible case of female exogamy was also identified, a newborn child buried in a PWC context with a diet similar to the norm in a TRB context. The cause and outcome of this co-existence will be discussed in terms of cultural and natural resilience.

### **Quantitative Reconstruction of Prehistoric Diets (Ostorf, Germany) Using Multiple Dietary Proxies and a Bayesian Mixing Model (FRUITS)**

**Ricardo Fernandes** (Leibniz Kiel University, Kiel)

Offering quantitative estimates on the intake of different food groups by past humans from the analysis of their bones represents a sought-after research goal. This quantification would permit addressing important archaeological questions related to, for instance, resource access, social differentiation, shifts in dietary strategies, etc. A novel Bayesian model, FRUITS (Food Reconstruction Using Isotopic Transferred Signals), was developed to achieve quantitative human diet reconstruction relying on isotopic data. The capabilities of FRUITS include the incorporation of uncertainties in consumer and food groups' isotopic signals, variability in isotopic enrichment, and addressing dietary routing. Model outputs include probability distributions and confidence intervals for the relative intake of different food groups. The methodology was applied in the quantitative diet reconstruction of individuals recovered from the prehistoric cemetery of Ostorf (Germany). This case study is of particular interest given that the individuals, while having associated Funnel Beaker cultural markers, present bone isotopic values that suggest, to some extent, the adoption of hunter-gatherer dietary practices.

### **Working Locations at Star Carr – Mapping Microresidues and Microwear at an Artefact and Site-Level**

**Aimée Little** (Department of Archaeology, The University of York, York), **Shannon Croft** (Department of Archaeology, The University of York, York), **Charlie C.A. Rowley** (Department of Archaeology, The University of York, York), **Oliver Craig** (Department of Archaeology, The University of York, York), **Chantal Conneller** (School of Arts, Languages and Cultures, The University of Manchester, Manchester), **Charles A.I. French** (Department of Archaeology and Anthropology, University of Cambridge, Cambridge), **Hayley Saul** (Department of Archaeology, The University of York, York), **Barry Taylor** (The Department of History and Archaeology, The University of Chester, Chester), **Nicky Milner** (Department of Archaeology, The University of York, York)

Biogeochemical analysis of flint from the Mesolithic site of Star Carr is currently underway. The POSTGLACIAL team is employing a number of high-resolution techniques, including: a complete vertical/horizontal spatial record of each artefact's location, soil micromorphology, low/high-power microwear analysis, experimentation, technological studies and refitting of knapping debris. An integrative approach enables us to go beyond traditional artefact specialisms and identify evidence for cross-craft interaction: revealing a more balanced picture of everyday life at Star Carr. By drawing on extensive spatial and contextual data, and by mapping the location of residues in situ on the surface of the flint, permits us to think about hunter-gatherer behaviour at a range of scales. At the artefact-level, the relationship between tool morphology and use (what types of edges were being used for what?); and functional variation between tool types - not limited to formal tools – provides insights into what (not always obvious) choices were being made concerning the selection of flint blanks for particular tasks. Temporal variation in tool use may indicate adaptive strategies in an ever-changing wetland environment. More broadly, emerging patterns in the distribution of classes of residues at the site-level is imparting otherwise invisible information on activity areas.

## **POSTERS**

### **Dietary Practices of Late Hunter-Gatherers in Estonia: Preliminary Results of Carbon and Nitrogen Isotope Analysis**

**Mari Tõrv** (University of Tartu, Tartu), **Gunilla Eriksson** (Stockholm University, Stockholm)

The reconstruction of dietary practices of late hunter-gatherers in Estonia during the time span of c. 5000–3000 cal. BC is mostly based on zooarchaeological analyses of faunal material. During the past decades this picture has been complemented by the first finds of the pollen of crops from the layers of bogs and in lake sediments. Both the pollen data and archaeological evidences only indirectly indicate the actual food consumption of late hunter-gatherers. In order to refine the picture analysis of carbon and nitrogen isotopes from two burials sites – Tamula and Veibri – were conducted in Stockholm in 2011. This preliminary study was followed by further research on other individuals from several Estonian burial sites in Germany in 2014. In addition to the regional variances of the food consumption the preliminary results of these studies allow us to take a closer look at individual variances of food preferences. As these studies are the first attempts to map the protein consumption of hunter-gatherer societies in Estonia the results are presented in a wider regional context.

## Early Pottery Use in Estonia

**Ester Oras** (University of Tartu, Tartu), **Aivar Kriiska** (University of Tartu, Tartu), **Alexandre Lucquin** (University of York, York), **Lembi Lõugas** (Tallinn University, Tallinn), **Oliver Craig** (University of York, York)

This poster presents a pilot study of early pottery use in Estonia. For the first time the residue analysis of Narva type pottery from Estonia was carried out. Narva ceramics from the 6th millennium BC stands for the introduction of pottery use in Estonia during the final phase of Late Mesolithic. Samples were collected from nine different sites all around the country. The analyses indicate different states of preservation and contamination issues, but also provide important new information about the early pottery use in the eastern Baltic region. Results of the GC-MS and GC-C-IRMS are combined with previous AMS dates and the studies of faunal remains in order to provide a more cohesive picture of the subsistence of the first pottery users in Estonia.



## T04S014 - LANDSCAPES OF LUXURY?: PARK LANDSCAPES AND THEIR WIDER CONTEXT IN MEDIEVAL EUROPE

**Organizers: Derek Hall** (Centre for Environmental History and Politics, University of Stirling, Perth), **Kevin Malloy** (University of Wyoming, Dept. of Anthropology, Laramie)

Recent documentary and fieldwork research by the session organisers on medieval parks in Scotland has concentrated on exploring three different parks and their associated elements. This ground breaking research has started to date the use of these features and consider the nature of their design, construction and relation to the landscape. This session is designed to stimulate discussion on the concept of enclosed “park” spaces and their variety of functions during medieval times across Europe. It aims to re-evaluate classical ideas of one-dimensional hunting landscapes designed for ostentatious display against new ideas of multi-functional enclosures that were both prestigious and utilitarian. The relationship between high status residences and their landscapes will also be considered and an attempt made to compare and contrast function, form and construction of these little studied features. Multidisciplinary research discussions are encouraged to help kindle new methodological approaches and discussions.

## ORAL PRESENTATIONS

### Parks as Complex Landscapes: Using an Informal Model to Rethink the History and Functions of the Medieval Scottish Park Landscape

**Kevin Malloy** (University of Wyoming, Dept. of Anthropology, Laramie)

Unlike their English counterparts, research into the emergence, function, and symbolism of medieval parks in Scotland has been woefully neglected. Parks seemingly emerge in the late-twelfth century, are used throughout the medieval and early modern period, and in some instances still serve recreational functions today. While discussions of these landscapes typically place great emphasis on the role of deer and aristocratic hunting in the design and use of these structures, this study aims to explore other, potentially significant functions of these sites that include woodland and timber management, wood-pasturing, and secure grazing enclosures. Through a series of archaeological excavations, archival research, and environmental examinations, this on-going study attempts to demonstrate that parks were complex in design by exploring the link between their emergence and functions and the environmental and climatic conditions of the medieval period through the use of an informal model. This study has found evidence that parks were part of a wide and complex medieval landscape. Changing climate and environment played a role in the social issues that led to deforestation and timber depletion, leading some parks to become an avenue for conspicuous consumption through the limiting of resource access, while simultaneously becoming a means of woodland conservation.

### A Multi-Functional Landscape? High Status Hunting Grounds in Medieval Sweden

**Asa Ahrland** (Dept. of Landscape Architecture, Planning and Management, Swedish University of Agricultural Sciences, Alnarp)

Parks of ancient Asian empires, like the Persian *paridaezas*, were complex structures charged with a multitude of meanings and functions. During the high Middle Ages parks were a part of an élite culture in Europe and could display a similar complexity. It has been argued that Sweden before the 1500s, despite its international contacts, was too much on the periphery to embrace an advanced court culture including parks. However, the sources suggest that Sweden was divided into two parts with different settings concerning the implementation and connotations of hunting. The south part connected with the continental tradition where land ownership, game and hunting were expressions of a feudal system. The north, considered a periphery, was devoid of such claims. There are many indications of high status hunting in southern Sweden pre 1500. Osteology shows that game was exclusively consumed at castles, dioceses and monasteries. Illustrations and



narratives underline awareness of deer hunting as a prestigious pastime and possibly the park as a phenomenon. To get a greater knowledge of parks, the landscape and archaeological remains have to be studied. Being part of a long continuum through history, medieval parks would embrace multi-functionality similar to that of latter counterparts in Sweden.

### **A Physical and Zooarchaeological Reassessment of Anglo-Saxon Hagan and Haiae: A Case Study of Goltho and Facombe Netherton**

**Craig Dicken** (University of Nottingham, Nottingham), **Frazer Bowen** (University of Nottingham, Nottingham)

This paper examines various types of Anglo-Saxon deer enclosure within the landscape to ascertain what the previously understudied physical nature of these pre-Norman enclosures was, and how they compared to conventional Norman parks. It will attempt to identify within the landscape a series of features described by place names or documentary sources as hagan and haiae, and will indicate possible differences between these forms of enclosure. Additionally, this paper will speculate on the role that fallow deer (*Dama dama dama*) may have played in this distinction. Despite their long history in Britain, fallow deer are an intrusive species; the received wisdom being that they were introduced alongside parks by the Normans. Recent zooarchaeological evidence has shown that populations were introduced into Roman Britain, but a dearth of fallow deer skeletal remains in the Anglo-Saxon record shows that any Romano-British populations did not survive. This paper presents new radiocarbon dates and isotope data from Goltho, as well as tentative evidence from other sites, which seemingly shows that fallow deer were reintroduced to Britain in the late Anglo-Saxon period. Fallow deer being a more docile species than roe deer were naturally more suited to being kept fully enclosed; this may have been a key factor in the difference between hagan and haiae.

### **The Wallenstein's "Casino". An Example of the Use of Sophisticated Landscape Composition Based on Archaeological Evidence**

**Kristyna Matejkova** (Independent researcher), **Petr Ulicny** (Independent researcher)

The development of Czech garden archaeology is only just beginning. Practically no archaeological research aimed at Medieval gardens in the Czech Republic has yet taken place. There are however a few studies of currently renovated park resorts, whose predecessors were Early Modern gardens and hunting parks. Such an example is the „casino“ in the vicinity of the town of Jicin (north-eastern Bohemia). This park was ordered to be built by Duke Albrecht of Wallenstein in the first half of the 17<sup>th</sup> century. Although a comprehensive archaeological research of the site is still lacking, we can get an idea of how the intended area looked like thanks to historical research and survey of still standing buildings. The source of Wallenstein's inspiration was undoubtedly Renaissance Italy, which was famous for its landscape composition together with an attention to detail. Evidence for this is the recently discovered assemblage of ceramic flower pots, which the Duke had ordered to be made. From the rich Wallenstein's correspondence we can make an idea of different species of cultivated plants, which should have increased the overall prestige of the summer residence. This site will be presented as an example of the use of sophisticated landscape composition and as proof of growing research interest in this issue.

### **The Archaeology of the Park - A Consideration of the Techniques and Methods of Understanding Large Enclosed Spaces**

**Derek Hall** (Centre for Environmental History and Policy, University of Stirling, Perth)

Parks by their nature, and no matter their function, are large open spaces enclosed often by sizeable earthworks or stone walls and ditches. This presentation will review the methods used to address specific questions that were being asked of three Scottish hunting parks. The results will be presented and their success or failure evaluated. The use of LIDAR, aerial photography, Google Earth, geophysics and field survey will also be discussed. Finally some consideration will also be given as to how best to protect this monument type which is often under great pressure from change in land use or large scale development such as tree planting or wind farm construction.

### **Mutual Interaction between the Development of Urban Green Landscape and Urban Communities Sustainability**

**Seyed Omidreza Shobairi** (Independent researcher, Shiraz), **Seyed Abazar Shobairi** (Philosophy School, Athens University, Athens)

Currently the environmental crisis such as climate change, loss of biodiversity and ozone layer destruction are due to industrial activity in two recent centuries that threatens the world. Global organizations are trying to conservation natural resources, wildlife and environment. At the other hand protection the environment in large ecosystem in the cities are one of their instructions that should be moved towards sustainable urban development, too. urban sustainability is based on components made of urban environment that needs more attention to natural components and urban green landscape. The Industrial revolution caused the creation of the industrial cities, increase the population and finally compression of the house in the cities which has led to the rapid growth of urbanization. In this paper be recommended that nowadays



systematic thinking in the concept of sustainable development, especially in large cities has emerged that it emphasizes in the role of urban green landscape features at the resort with a real understanding of the social, economic and cultural areas. Also the main principles of sustainable urban development are reduction of environmental pollution, afforestation and at finality establishment of forest parks and green landscape are imperatives for communities to achieve sustainability and stability.

## POSTER

### **The Agroforestry: A Modern Approach to Resource Sustainability Biodiversity and the Food Security**

**Seyed Omidreza Shobairi** (MS Natural Resources, Shiraz), **Seyed Abazar Shobairi** (Philosophy School, Athens University, Athens)

Currently, management of water and soil resources is one of the most important challenges and necessities in the agriculture and natural resources systems in recent decades in the world. Human activities in agricultural lands, such as land plowing in the slope, the application of monoculture systems, excessive use of chemical fertilizers and pesticides pose a risk to soil and water resources and the annihilation of fauna and flora. Agroforestry in this article as a new suitable approach for sustainable soil and water resources are recommended. Increasing biodiversity on the farm could reduce the risk of production, stability of the yield and ultimately increase food availability. All mentioned issues are one of the important and useful consequences in applying context of Agroforestry. In this paper we will try to present which mixed cultivation is as one of the spatially-periodic systems and efficient in Agroforestry than it can be influence to providing global food availability. In addition, we discuss on increased biodiversity led to resistance to adverse factors, reducing pest crisis, reduce the possibility of losses arising from changes in the environment variables, and finally results better efficiency in the use of natural resources.



## **T04S015 - CULT ACTIVITIES, PERFORMANCES AND EXPERIENCES IN SANCTUARIES AND SACRED LANDSCAPES**

**Organizers:** **Reem El-Khodary** (University of Sadat, Faculty of Tourism and Hotels, Sadat City), **Mercourios Georgiadis** (Humanities Building, University of Nottingham, Nottingham), **Katy Soar**

This session focuses on the character and practice of rituals within sacred contexts. The identification and interpretation of rituals and their performative elements is an area of increasing importance for scholars concerned with understanding ancient religion. This approach focuses on the active participation of worshippers in the shaping and practice of religion. The session also seeks to address these issues within both the strictly defined boundaries of a sanctuary, and in relation to wider geographical areas. Sacred landscapes can be broader regions, including a number of cultic sites in close proximity, and routes linking these sites with each other or with habitation areas. The experience of the worshippers or pilgrims visiting extra-urban sacred sites is another dimension of religious experience that this session aims to pursue. The discussion of diverse aspects of ritual will provide a multifarious image of practices and beliefs across the Mediterranean during antiquity. This session will emphasize how various religions in this region utilized ritual, and how these ideas were expressed within a cultic framework. The analysis of such activities can be supported by a variety of evidence, including texts, iconographic representations, ritual objects, landscape analyses, and the interpretation of ritually-related contexts in urban and extra-urban locales. While the focus is on the Mediterranean in antiquity, papers which cover similar themes from other areas will also be considered.

## ORAL PRESENTATIONS

### **Late Bronze Age Cultic Activity in Ancient Canaan: A View from Tel Burna**

**Itzhaq Shai** (Bar Ilan University, Ramat-Gan), **Chris McKinny** (Bar Ilan University, Ramat Gan), **Joe Uziel** (Israel Antiquities Authority, Jerusalem)

Late Bronze Age cultic practice has been the focus of investigations stemming from various avenues of research, with excavation data from cultic complexes excavated some time ago (e.g. Lachish) playing a major role in these studies. This study will present finds that were discovered recently at Tel Burna, a site which is clearly one of the key sites in the Shephelah, commanding its surrounding landscape and trade routes. In Area B, a large and massive 13th century complex was exposed with unique finds related to religious practices at the site. Finds include a row of pithoi (some imported), set into pockets in the bedrock; two mask fragments; burnt bones; and unique Cypriot imported pottery, such as a vessel with three cups joined together – likely of cultic orientation. Furthermore, the building technique also suggests that this area should be interpreted as cultic. In turn, we will discuss the building plan and the distribution of artifacts in order to gain a better

understanding of the people who used it and the deity that was worshipped by them. Through these finds we will reflect on the understanding of Late Bronze Age cult, through the collection of excavation data in modern and scientific manners.

### **Performing Imperial Cult: Cult Practices and Landscape in Hittite Anatolia**

**Yiğit H. Erbil** (Hacettepe University, Ankara)

In practices of cult, reflections of nature are personalized with images of great gods. The early religions of Anatolia, just as in other parts of the world, were based on the interaction of man and nature, and the most important power of nature was the life giving earth. The roots of Hittite religion can be traced back to these early concepts. The cult practices, as a result of the many changes and additions that occurred within a long period of time, were based on a system of reward and punishment. Secular and religious messages have been presented together with the satisfaction of gods and the social messages. The interconnection between religion and state was revealed by the Hittite cult practices. These practices are observed in ceremonies involving communication with the gods of the underworld, cult of the dead, cult of the ancestors and the cycle of the seasons. However, evidence of a practice serving more than one purpose are revealed as wishing for a productive year, the prosperity of the society and empire, propaganda of the “divine rights” of the kings and consolidation of the imperial power.

### **The Role of Landscape, Performance and Ritual Activities at the Peak Sanctuary of Leska on LBA Kythera** **Mercourios Georgiadis** (University of Nottingham, Nottingham)

A Late Bronze Age peak sanctuary has been recently identified at Leska on the island of Kythera. The thorough investigation that has taken place at this site has emphasized not only the importance of the landscape, but the dynamic character it had in the beliefs and rituals conducted on the sanctuary. The performance of rituals conducted by the worshippers moving through the landscape to reach the extra-settlement sanctuary of Leska could be envisaged, as well as within the sacred space itself. The material culture recovered at the site also provides a good understanding of the ritual activities that were practiced on the summit of the mountain. The combination of the available evidence will allow an assessment of the character of this sanctuary and the dynamic role of the worshippers in its context.

### **Aspects of Sacred Rituals around the Bronze Age Site of Pylos**

**Joanna M. A. Murphy** (University of North Carolina, Greensboro)

This paper explores the changing areas used for religious rituals around the Bronze Age palace at Pylos, southwestern Greece. I show that during the earlier periods of the inception and growth of the palace, burial areas were the only areas that we can securely identify as areas designated for interaction with a supernatural order. This focus changes during the highpoint of the palace with large-scale, multi-level rituals taking place at the palace at sanctuaries outside the palace. I argue that the changing location of the sacred is directly related to the changing economic concerns of the ritual participants in relation to the growing political economy of the palace and the increase in the geographic area of palatial interests. I propose that the fall off in burial areas during LH IIIB and the palatial contributions to festivals at sanctuaries outside the palaces are linked to the competing goals of the palatial and religious elite to draw attention away from the ancestral dead and focus more on the contemporary self-made legitimacy of the elites. This avenue of exploration allows us to discuss in more detail the complex relationship between the palace, the religious sphere, the dead, and the supernatural.

### **Veneration of the Olive in Minoan Crete**

**Jeffrey S. Soles** (University of North Carolina, Greensboro)

This paper describes recent discoveries from the Greek-American excavations at Mochlos and other evidence from Minoan Crete for ritual involving the veneration of olive trees, some of which takes place in the open countryside, some in the palace compound, and some in small temene constructed within settlement areas. It describes the ritual activities that have come to light at Mochlos, but also draws on the work of Emile Durkheim, Roy Rappaport, and others to show how ritual, carried out locally, regulates the social and economic processes of Minoan society at large. The Mochlos excavation has discovered remains of olives, some preserving their pulp and even their stems, and remains of olive leaves some still preserving their central veins, all dating c. 1450 BCE, in ritual contexts that allow us to reconstruct the ritual activity that actually occurred. The evidence also points to Knossos, the cosmological center of Minoan civilization, as the source of inspiration for this activity.

### **The Role of Humour in the Life of the Ancient Egyptians Criticism or Entertainment?**

**Reem El-Khodary** (University of Sadat City, Sadat City)

Humour is a word that confused people to define accurately. It is the joke, criticism, mockery, sarcasm, witty saying. Cartoon and caricature are ways of expressing all of that. Teasing can be fun if it is good humoured, but mocking is generally intended

to hurt. The Ancient Egyptians reaffirm the notion that even though they may not have focused on humour in their artistic and literary creations, it was an important aspect of their culture. Humour is often quite difficult to recognize in a language that remains imperfectly known and is as remote from ourselves as it was from the ancient Egyptians., who undoubtedly chuckled at writing such an employed wit-satire, wordplays, irony, puns, metaphors, similes and other literary devices. Also normal daily life scenes at tombs and temples can be very witty or humorous, sending a clear message. Finally, we should realize that the ancient Egyptian humour including the humorous representations as well as the jokes and wits might not amuse us, but they are still humorous, if we see it through the eyes of the ancient Egyptians not through our own eyes.

### **Montu, the Origin of a Sacred Network**

**Rasha K. Soliman** (Misr University for Science & Technology, Giza)

A key issue in understanding the sacred landscape of Thebes is the origin of god Montu and how his cult, and system of temples, changed through time and in relationship to other gods. He had several temples built for him in the Theban region including those at the closely connected sites of Armant and Tod south of Thebes, and also at Medamoud north-east of Karnak. One aspect of Montu is his division into multiple forms, particularly visible by the time of the New Kingdom where he can manifest himself in the form of four Montus connected with the four primary cult places of the Theban nome: Thebes proper, Tod, Armant and Medamoud. A network that could imply an originally linked series of Theban religious sites defined by the rituals and festivals dedicated to Montu. The evolution of Montu within a cultic and temple framework of the Theban nome, is an issue yet to be resolved. However, the comparatively limited state of excavation and publication of these sites complicates the analysis and has led to various controversies regarding the specific origin of Montu.

### **Sacred and Profane: Sardinian Sanctuaries as Centres of Ritual and Identity**

**Jeremy Hayne** (Independent researcher, Milan)

The Late Bronze and Iron Age sanctuaries of Sardinia are unique in the western Mediterranean for their size and organization. They mainly developed in the upland zones away from the areas of greater contact in the south and west of the island and yet they both draw on the past and point to new directions of the sacred in the Nuragic society. Throughout the ancient world sanctuaries were often places where identities are integrated and negotiated (cf. Broodbank 2013:557; Burke 2009:68). Through an examination of their material culture this paper looks at how far issues of identity and entanglement were important within the sanctuaries for the developing Sardinian islanders in a period that saw an increase in contact with the extra-island world. In line with the session it will focus on the evidence of rituals within the sanctuaries as ways of mediating the continuing and historic cultural structures and the actual situation, how far do they change and how far remain the same?

### **“Water, Water Every Where”: Experiencing the Sacred Landscape of Central Adriatic Italy (900-250 BC)**

**Eleanor Betts** (The Open University, Milton Keynes)

The Central Adriatic region of Picenum is a relatively unknown area of Italy, but it has a rich material culture spanning the first millennium BC (ca. 900-268 BC). This paper considers the role water played in the cult activities at sanctuaries and sacred sites, to understand how the Picenes may have experienced their environment and given it meaning. Rivers and gorges marked routes through the Picene landscape, whilst springs, lakes (and sometimes caves) were stopping points. Where it marked a stopping point, water often became a cult focus (e.g. Lago di Cingoli), from which an architecturally elaborate sanctuary might develop (e.g. Temple of Hercules, Vomano; Montefortino di Arcevia). This paper demonstrates how phenomenology can be used to establish the sacred or utilitarian function of water at a given site, such as ritual purification or healing. This is achieved through analysis of the effects and properties of specific types of water and examination of the sacred sites where people have left physical signs that they recognised the ritual or symbolic value of water. These signs are categorised as votive deposition, artistic representation and monumentalisation. At many sacred sites water appears to mark boundaries, not only between territories, but also between the lived-world and otherworld, the sacred and profane.

### **Sanctuaries and Iron Age Landscapes in the Southeast of Iberian Peninsula**

**Leticia López-Mondéjar** (University of Murcia, Murcia)

This paper aims to analyse the territorial and social role of sanctuaries in the Southeast of the Iberian Peninsula during the Late Iron Age. It will focus on three main issues: symbolic objects, cult activities and sacred landscapes. The presentation seeks to go beyond the sacred space of the sanctuaries or their material culture, in order to analyse from a wider approach their role in the creation of power landscapes of the Iberian Iron Age. GIS analysis and a territorial approach are considered essential in order to provide a global picture of sanctuaries within their historical and socio-political context.

## **Bases for the Cult Statues? Defining the Cultic Space in Archaic Ionian Sanctuaries**

**Kenan Eran** (Mimar Sinan Fine Arts University, Istanbul)

During the Geometric and the Archaic Periods, certain sanctuaries in Ionia seem to have evolved around specific spots in the temenos space in different phases throughout their history. One common aspect of all these sanctuaries is the presence of a base-like structure that remained immobile despite changes in the general organization of the religious topography and they often remain as a determining element in the axial development of monumental architecture. This paper suggests that the base-like structures in certain Ionian sanctuaries may have been statue bases on which the earliest cult statues were placed. Based on this interpretation, one may observe the restructuring and change in the organization of temenos space throughout the Archaic Period. During the earlier phases, these places of worship were simple terraces with cult statues in their center, sometimes surrounded by a simple peribolos. However, at a certain time, this accessibility and visibility of the statue were limited by the restructuring of the cultic space. Therefore, as this paper suggests, the construction of the monumental temples could be related to the new conceptualization of the relationship with the deities.

## **An Iconographic Analysis on Relationship between Cult of Dionysos and Terracotta Figurines Carrying Barbitos in Claros**

**Elçin Doğan Gürbüz** (Ege University, Izmir), **Cennet Pişkin Ayvazoğlu** (Ege University, Izmir)

Claros is an oracle centre dedicated to Apollo Clarios. In this sanctuary, many gods and goddess were worshipped besides Apollo. Inscriptions show us that Dionysos was one of these gods. Most of the findings which indicate the presence of the cult of Dionysos in the sanctuary are from the Hellenistic Period. Music is an important characteristic of Dionysos festivals and was a stimulating element of Dionysiac orgia. Barbitos (barbiton), a stringed instrument resembling the lyra, was played in festivals of Dionysos and symposia. Barbitos, seen on vase paintings after the last quarter of the fourth century BC, are nearly always depicted in the hands of Dionysos beside his thiasos. During the excavations carried out around the sacred altars of Apollo in Claros, terracotta figurines depicting dressed men carrying a stringed instrument were uncovered. Thirty of these figurines are depicted with a barbitos. In this study, that relationship between the cult of Dionysos and terracotta figurines carrying barbitos in Claros will be discussed.

## **Visualizing Sacred Space and Divine Presence: The Depiction of Sanctuary and of Divinity Interacting with Worshippers, Refugees or Violators on Greek Vases**

**Anthi Dipla** (Hellenic Open University, Athens)

This presentation aims to explore the conception of sacred space and the interaction of gods and mortals within its boundaries, as depicted in narrative scenes on Greek, mainly Attic, and South Italian vases. Vase painters do not seem to be interested in creating a complex pictorial space; they rather allude to it through isolated, symbolic elements of an architectural or a natural setting. The setting of a sanctuary is thus portrayed in a shorthand, conventional way. An altar, often flanked by a tree, denotes the most fundamental unit of a sanctuary, while a colonnade and a Doric architrave normally point to a temple. By or inside it stands the cult statue, either as a stylized, wooden effigy, or as an animated figure of the god. Gods are shown receiving sacrificial processions, such as in civic festivals, or individual worshipers, entering the sanctuary with their thanksgiving or pleading offerings. Divine-mortal interaction also involves gods mediating or intervening in aid of refugees to their sanctuaries, such as Athena confronting Ajax who pursues her priestess, Cassandra, and violates the goddess' sanctuary raping her. In scenes of erotic pursuit, moreover, maidens are often shown taking refuge to an altar/palm tree, suggesting Artemis' sanctuary.

## **Roman Military Installations as a Setting for Religious Ceremonies: The Experience of a Simple Soldier**

**Tomasz Dziurdzik** (University of Warsaw, Warsaw)

The Roman Imperial army held numerous cult ceremonies and sacrifices, important not only for the proper relations with the gods. Religious festivals helped the process of Romanization of soldiers and strengthened the esprit de corps in the units. Some ceremonies also had a political context, promoting loyalty to the ruling dynasty. The analysis of the cult activities of the Roman army has so far been concentrated around their performance – on the officers and a select group of NCOs acting as priests. The paper aims to widen the scope of interest: to consider what amounted to the religious experience of a simple soldier during official cult ceremonies. Most such ceremonies were held in the principia (headquarters building) or the training grounds of respective units. Those military installations must have been a truly imposing setting, but their layout and furnishing was not optimized for such use, as they served multiple, wide-ranging purposes. Bearing in mind this architectural and spatial framework, the question of the possibility and extent of active and/or passive participation of a simple soldier in a ceremony is crucial to our understanding of the impact the official army religion had on the military.

## Ancient Sanctuaries of the Jomon Period in Japan

**Elena Solovyeva** (Institute of Archaeology and Ethnography SB RAS, Novosibirsk)

The Neolithic era is a time of beginnings of human representations of the world and space. In ancient Japan this period is named the Jomon period. Developing religious representations are reflected in ritual constructions which can be considered as ancient sanctuaries. Possibly the most well-known of such constructions are the stone circles which were widespread from Hokkaido island to the southern part of Honshu island. This type of construction is traditionally connected with the rituals of a solar cult. The largest stone circles are in Akita prefecture, near the site of Ooyu, and includes circles, made of stones, and special constructions made from vertical stones, the so-called "sundial". Another category of ancient sanctuaries are the cemeteries located very close to settlements. The best example is Tateishi site in Iwate prefecture. This settlement is located on the hill and just near is a cemetery which is territorially limited by two vertically standing stones. Certain ritual practices were held in the Jomon period in special types of settlements which had special open spaces, "areas" which could be used for carrying out collective ceremonies. In the territory of such settlements are found many dogu figurines, which are usually broken. The most famous such settlement is Sannaimaruyama, Aomori prefecture.

## Balbals of North Asia - Sacred Statues?

**Alexandr Solovyev** (Institute of Archaeology and Ethnography SB RAS, Novosibirsk)

One of the most widespread architectural constructions of ancient Turkic nomads are the so-called fences - low quadrangles of stone plates filled with small stones. Near the side of these constructions a stone sculpture and vertical stones called balbals was erected. Inside the fences excavations have revealed horse harnesses, as well as the remains of columns and pottery fragments. Originally these constructions were considered to be burials of ancient nomads; later they were thought to be memorial places. Recent opinion connects them with temples. But the meaning of the vertical stones - balbals- is still hazy. Opinions are diverse; from representations of killed enemies to sacred hitching posts. Acknowledging the Xingjiang's medieval monuments of Northern and the Central China allows us to connect elements of funeral practices of ancient nomads with the cultural heritage of an agricultural civilization, especially in the funeral constructions of Mongolian nobility built by the Chinese masters in the Chinese style. One element of those constructions is a fence, which is connected with special halls of ceremonies, and balbal rows can be connected with the idea of the "the avenue of spirits" near the burials of Emperors and nobility.

## POSTERS

### Claros, an Extra-Urban Sanctuary in Ionia

**Gülşah Günata** (Koç University, Istanbul)

Sanctuaries were the places where religious activities took place. There were different types of sanctuaries depending on their geographical location in relation to a city. These are interurban, urban, suburban and extra-urban sanctuaries. Many of the Greek world's most famous sanctuaries were located away from the urban center, in the outlying territory, the chora. These extra-urban sanctuaries had both symbolic and sacred significance. They indicated direct contact between the countryside and town. According to one theory, one of the most important roles of these extra-urban sanctuaries was defining the boundaries of the polis, thereby strengthening the territorial claim of the city. These sanctuaries can be seen as a marker of the limit of human implantation and the limit of the city's control over the terrain. They also indicate a significant point of relation between neighboring poleis. An extra-urban sanctuary, Claros, the Sanctuary of Apollo was one of the most important oracular places of the ancient world. It is situated on the western shore of Anatolia, near Ephesus. This extra-urban sanctuary had two main cities; Colophon and Notion. Extra-urban character of the sanctuary, its relation with two cities, the sacred road, processions as ritual activity will be subject of this poster.

### Faunal Remains in Phoenician Sanctuaries in the SW of Iberian Peninsula

**Esteban García-Viñas** (Universidad Pablo de Olavide, Sevilla), **Eloísa Bernáldez-Sánchez** (Instituto Andaluz del Patrimonio Histórico, Sevilla)

In the South of the Iberian Peninsula the archaeologists had found several Phoenician evidences dated at the beginning of Iron Age. Some of these are ritual buildings, maybe related to Phoenician gods. In these archaeological sites were found deposits of faunal remains, which were using like offerings to their gods. In this work we study the archaeozoological results of some of these ancient sanctuaries to try to describe different patterns of the use of animals in ritual practices. Also, we will analyze the relationship between this archaeological register and other sanctuaries located around the Mediterranean Basin. Although we are still studying the archaeozoological evidence, the first results could be related to a Phoenician origin.





## T04S016 - PEOPLE AND THE MOUNTAINS - ENTERING INTO THE NEW LANDSCAPES

**Organizers:** **Andrzej Pelisiak** (Institute of Archaeology, University of Rzeszów, Rzeszów), **Marek Nowak** (Jagiellonian University in Krakow, Krakow), **Ciprian Astaloş** (Satu Mare County Museum - University College London, London)

There is controversy when and where the specific highland types of agro-pastoral economy were developed as a result of adaptational processes to these environments. To study different aspects of human activity in the mountains we propose to incorporate and bring together archaeological, botanical, zooarchaeological and ethnological information. The session will be focused on the Neolithic, Eneolithic, and Early Bronze Age. We wish to explore, among many other themes, several main areas of the research: • environmental history of highlands and the human impact in mountainous environments; • changes of human activity in different mountainous regions in long time perspective; • exploitation of different raw material e.g. siliceous rocks, salt etc.; • life in the mountains and the creation of new customs, rights and social relations; • ritual, domestic and mortuary structures components of the mountainous landscapes; • dialogue between different methodological perspectives and analytical methods. Core area of our interests are the Carpathians but the session is not limited by geographical span. We also welcome presentations and posters focused on the other mountainous areas. We invite empirical studies and broader overviews including theoretical reflections referred to the beginnings of human activity in the mountains.

## ORAL PRESENTATIONS

### Settlement and Economy of Prehistoric Communities of the Zvolen Basin and Surrounding Areas in the Western Carpathians (Slovakia)

**Ján Beljak** (Archaeological Institute of Slovak Academy of Science, Nitra), **Noémi Pažinová** (Constantine the Philosopher University, Nitra), **Marcin S. Przybyta** (Jagiellonian University Kraków, Kraków)

The aim is to present human activity (settlement patterns, economy, material culture) in Zvolen basin and surrounding areas during the Late Neolithic, Copper Age and Bronze Age. Special interest will be given to the upland settlement of Deserted castle in Zvolen and the evidence of its prehistoric occupation. At the same time we introduce other closer dated prehistoric sites in the region with emphasis on the various settlement types and their relationship to the natural conditions in the region. Zvolen basin located in the central part of Slovakia is indeed by surrounding mountains a relatively isolated geographical entity, but within material culture contacts with near and distant regions are visible since prehistoric times. In this area for a first time during the Late Neolithic/ Early Copper Age high zones of landscape (between 400 and 700 m above sea level) were inhabited. The objective of these first colonists was probably the exploitation of rare resources. The turbulent nature of this period within prehistoric Zvolen basin is showed by presence of fortifications in upland settlements as early as the Copper Age. Considerable settlement of upland hillforts in the region is evident later during the Late Bronze and Early Iron Age.

### Principles of Settlement of the Oder Gate Area from the Neolithic Era until the Early Middle Ages

**Vratislav Janák** (Silesian University, Opava), **Peter Kováčik** (Silesian University, Opava)

The Oder Gate – the north part of the Moravian Gate – forms an important communication corridor between the Moravia and Silesia. It was a typical peripheral area, continuously forested save for minor exceptions. The settlement in the area can be characterized as very thin, discontinued in time and space, with a special purpose. The individual settlement episodes were connected mainly with passing-through of a long-distance route, or potentially with raw material mining or non-agricultural forest exploitation (hunting, grazing?). Settlements of prehistoric cultures are known in various places, the Linear Pottery culture, the late Lengyel culture, several periods of the Lusatian culture, from the end of the La Tène culture and traces of Przeworsk culture settlement, and possibly even Funnel Beaker culture. There have been numerous finds of stone hammer-axes from the Corded Ware culture and Roman coins. The microregion of Kotouč near Štramberk and its vicinity, in addition to the above-mentioned, has traces of the presence of people in the Globular Amphora culture, in the Late Bronze Age, in the Late and Middle La Tène culture and Early Middle Ages. These settlement principles can be used, *mutatis mutandis*, for a range of other peripheral areas in Central Europe.

### Salt and Prehistoric (From the Neolithic to the Early Bronze Age) Population Movements in the Eastern Carpathians of Romania. A Diachronic Gis-Based Analysis

**Andrei Asăndulesei** ("Alexandru Ioan Cuza" University of Iaşi, Iaşi), **Marius Alexianu** ("Alexandru Ioan Cuza" University of Iaşi, Iaşi), **Felix-Adrian Tencariu** ("Alexandru Ioan Cuza" University of Iaşi, Iaşi), **Ştefan Caliniuc** ("Alexandru Ioan Cuza" University of Iaşi, Iaşi), **Roxana-Gabriela Curcă** ("Alexandru Ioan Cuza" University of Iaşi, Iaşi), **Mihaela Asandulesei** ("Alexandru Ioan Cuza" University of Iaşi, Iaşi)

The presence of some archaeological materials that testify that as early as the Neolithic the human communities exploited the salt and saline water resources in order to satisfy various requirements, constituted the starting point for a series of



interdisciplinary ethnoarchaeological investigations conducted in the Eastern Carpathian area of Romania. Directly connected to the exploitation of this indispensable mineral are the population movements and variable density of the prehistoric communities occupying this area during the Neolithic, Eneolithic and Early Bronze Age, periods which witnessed the development in this area of some of the most representative prehistoric civilizations for European prehistory (e.g. the Cucuteni culture). By means of an integrated analysis, in a GIS environment, of the archaeological, geographical and ethnographical data, we were able to capture the spatial distribution of the settlements, alongside the dynamic of the human occupation during the aforementioned timespan, for the mountainous areas of Eastern Romania.

### **People and Mountains in the North of Romania: Maramureş Mountains Archaeological Project**

**Ciprian Astaloş** (Satu Mare County Museum, Satu Mare), **Radu Alexandru Dragoman** (Institute of Archaeology Bucharest, Bucharest), **Dan Pop**, **Bogdan Bobina** (County Museum of History and Archaeology Maramures, Maramures)

Mountains are between the less investigated areas in the Romanian archaeology in terms of systematic research, a situation very different than the one from Poland and Slovakia, where intensive research already took place in some point in the Carpathians. To fill this void, a team of archaeologists from the Institute of Archaeology from Bucharest, and the museums of Baia Mare and Satu Mare, started in 2012 the Maramures Mountains Archaeological Project, with the aim to investigate intensively a microregion from the east of the Maramures Depression, linked to the Prislop Pass and high altitude peaks like Geamanul. Mountains and passes are seen not only as 'source' for food and raw materials or simply the natural environment in which people live but also as symbolic spaces. For a better understanding of the landscape, the recording of sites and artifacts is completed by a phenomenological analysis. In this paper we present the results of the first fieldwork season (2012) with finds from the Palaeolithic to the contemporary period. We present also the stage of research for the high mountain area of North Transylvania and the proposals for future research in the framework of our project.

### **Carpathians: Barrier or Border? Cultures Tiszapolgár and Cucuteni-Tripolie**

**Taras Tkachuk** (National Preserve of Monuments "Ancient Galych", Halicz)

Cultures Cucuteni-Tripolie and Tiszapolgar separated the Carpathian Mountains. What role do they played in prehistory : barrier or natural boundary through which there were contacts between the two cultures? Finds of copper products (ax – hammers Yaszlady type, Szakalhat type axes, one of which was found in the Ukrainian Carpathians ( Kropyvysche, Kolomya District ), gold jewelry ( Brad : Monah D. 2003) Trajan : Dumitrescu VI. 1979) in the Cucuteni- Tripolye show the exchange between them. Interesting is the fact that the receiving side was a culture Cucuteni- Tripolye. It is possible that the person who brought with them to exchange copper and gold products enjoy a high status in the eyes cucuteni - trypillian population. It is possible that other semi things they enjoyed also granted special status. This indicates, in my view, copy them tyszapolgars dishes ( " high " pithos" and deep bowls with rows of handles located outside in chess order, tall bowl with bosses outside, etc.). Perhaps in exchange for copper and gold products tyszapolgar population received Volyn quality flint, as evidenced by the deposit in the graves Veliko Rashkovtsy (Slovakia) (Vizdal J. 1977).

### **Bükk Culture Cave Sites in North Eastern Hungary**

**Orsolya Laczi** (Eötvös Loránd University, Budapest, Budapest)

The community of the Middle Neolithic Bükk Culture regularly utilized cave sites, which previously were only occupied in the Paleolithic Era. The people of the famous well burned, incised and incrustated fine pottery inhabited both caves and open-air settlements as well. Based on the unearthed prehistoric cave finds, recent studies try to investigate the intensive usage of the caves can be connected to the Bükk Culture: former archaeologists excavated pottery fragments, burials, fire-places, pits, post holes and stake hole „structures” from more than 50 separated cave sites in Hungary. One of the greatest questions is the purpose of inhabiting various caves during the different phases of prehistory. What is the relationship between the cave sites and the open-air settlements? What were the natural features of the cave during the different archaeological ages? What led the people to inhabit these dark, dangerous subterranean formations? The presentation is looking for answers of the cave inhabitation by reviewing the known, relevant Bükk Culture cave finds in Hungary. It attempts to separate the traces of profane and ritual usage, especially from the Baradla Cave: everyday objects, burials, „special” objects, like a so-called furnace with unknown function.

### **The Settlement of the Corded Ware Culture and Early Phases of the Mierzanowice Culture in Carpathian Mountains**

**Paweł Jarosz** (Polish Academy of Sciences, Kraków)

The aim of the analyse was to present the settlement of the Corded Ware culture and the early phases of the Mierzanowice culture in Carpathian foothills. On the basis of the available bibliography, information from archaeological excavations

and surface survey of the Archaeological Record of Poland there could be set the relation between the Corded Ware Culture and the proto and early- Mierzanowice Culture as well as materials dated on the Early Bronze Age generally. The analyse of archaeological materials allow to grasp changes in the chronological phases of these cultures in the separated regions. On the basis of gathered information there is possible to reconstruct the settlement in the Late Neolithic and in Early Bronze Age on the background of natural, geographical as well as cultural environment of the Carpathian Foothills. Particularly interesting is the study of changes in settlement of following the Corded Ware Cultures and then the proto and early- Mierzanowice Culture.

### **Environmental Indications of Human Activity in the Polish Western Carpathians during the Neolithic**

**Marek Nowak** (Jagiellonian University, Kraków)

The presentation will examine the environmental indicators of human activity (mainly pollen records) in the region of Polish Western Carpathians which can be referred to the Neolithic period (in the broad sense, i.e. ca. 5500-2300 BC). They will be confronted with local archaeological data as well as with data of this kind from the territories situated to the north and to the south of the Western Carpathians. As a result, the model constructions will be worked out which will describe the ways of using this area by Neolithic communities. In particular, these models will attempt to solve the problem when the Western Carpathians were used only passively, as the area of people's movement along the north-south axis (and vice versa), and when they were consciously and autonomously exploited economically. Certainly, the issue of the importance of human behaviors for the general environmental transformations in the Western Carpathians in this period will be also discussed.

### **“Where Eagles Dare”. Late Neolithic Herders in the Bieszczady Mountains (SE Poland)**

**Andrzej Pelisiak** (University of Rzeszów, Rzeszów)

This paper is focused on the beginnings of exploitation of mountainous landscapes in the Late Neolithic. Palynological investigations indicated that human interference with once almost fully forested landscape in Bieszczady Mountains (SE Poland) become evident from about 2800 BC. Anthropomorphic changes of vegetations registered in III Millennium BC in the pollen diagrams are connected with animals herding started probably at the turn of the fourth and third millennium BC. Unfortunately there were not archaeological conformations of Late Neolithic and Early Bronze Age activity in this part of the Carpathians. This paper presents the recent discoveries of lithic artefacts made of different raw material found in the Bieszczady Mts. Important question is, what motivated the Late Neolithic men to enter into the Bieszczady Mountains? It seems to be that numerous salt springs were the important component of natural environment here. Salt springs, numerous water springs, small streams, and high level of ground water built a favorable conditions for the development of vegetations, even in dry seasons. These circumstances were probably properly recognized by Late Neolithic and Early Bronze Age herders, and led these groups to use these suitable, mountainous pastures located several or several tens kilometers away of their villages.

### **Neolithic Settlement and Land Use Dynamics in the Northern Alpine Foreland – An Archaeological and Archaeobotanical Study on Neolithic Settlement Patterns in the Hegau and the Western Part of the Lake Constance**

**Jutta Lechterbeck** (Regierungspräsidium Stuttgart Landesamt für Denkmalpflege, Hemmenhofen), **Matthias Merkl** (Archäologische Denkmalpflege, Hemmenhofen)

This paper will introduce first results of a project focusing on Neolithic settlement patterns (c. 5500-2000 BC) in the Northern Alpine Foreland. In the area of research - namely the Hegau and the western Lake Constance area - evidence of the Early Neolithic is chiefly found on dry mineral soils in the Hegau whereas Late Neolithic remains concentrate on wetland settlements along the banks of Lake Constance. Whether the apparent shift in habitat of different Neolithic periods is purported by different preservation conditions or by actual cultural and economic reasons is one key issue of the project. The potential land use of the hinterland of the lake dwellings has often been questioned. Since in the Hegau archaeological records of the 4th and early 3rd millennium BC are scarce potential land use should be detected by examining specific pollen records to identify agricultural activities. The archaeological and archaeobotanical informations are evaluated in correlation with absolute chronological data in order to develop spatial and chronological models by GIS. The analysis aims at putting forward possible scenarios of settlement and land use dynamics within the area of research.

### **From People to Landscapes. The Fluturnun Project. Archaeology and Anthropology in the Upper Sagittario Valley (Italy, AQ)**

**Francesca Romana Del Fattore** (University of Bologna, Bologna), **Alessandro Felici** (Matrix 96 Soc. Coop, Rome), **Anna Rizzo** (Università di Bologna “Alma Mater Studiorum”, Bologna)

The aim is to document the long-term human settlement history of the upper Sagittario Valley, in central-southern Italy, from its earliest occupation in the Paleolithic right up to the present day. Integrating the techniques of Archaeology, An-

thropology, Geology, Landscape analysis (GIS) and History the work shows how settlement and people in this Mediterranean valley are strongly connected to the surrounding environment. A unique mountainous district composed of diversified ecological niches, where intensive surveys represent a key- tool to reconstruct possible patterns of ancient landscapes and local forms of agro-pastoral economies, in particular transhumance. In this sense, the anthropological research, through the acquisition and the analysis of oral and written sources, guides and leads the archaeological works. The sample excavation of a late-imperial site on the roman route between Sulmo and Aufidena, is a valid opportunity to test some of the aspects emerged on a larger scale during the survey.

### **People and Environment in the Mid-Late Holocene: Palaeoecological Records from the Upland Zone of the Northern Apennines, NW Italy**

**Lionello Morandi** (University of Reading, Reading), **Nicholas P. Branch** (University of Reading, Reading)

Multiple palaeoecological records from the upland zone of the northern Apennines (NW Italy) point to human disturbance within the ecosystems and landscape changes from at least the Middle Neolithic. Following these events a decline in several tree taxa is recorded, coupled by evidence for the spread of *Fagus*, biomass burning and soil erosion. This picture seems to be partly in agreement with the archaeological record available for the region, although several important vegetation changes appear to be consistent with periods of climate change in the central-western Mediterranean. Given the evidence for possible human activity during the late prehistory, one site has been selected as a promising context to carry out non-pollen palynomorph analysis. This technique helps to assess the degree of anthropogenic influence and provides additional data on the past ecology of the area. The presence of coprophilous fungal spores permits the local presence of animals to be proven, and may allow a partial explanation for the episodes of forest disturbance highlighted by previous studies. A relationship between coprophilous spores and wild herbivores or pastoral activities characterizing Copper Age communities in the region is discussed.

### **Cultivated Pulses in Prehistory of Armenia**

**Roman Hovsepyan** (Institute of Archaeology and Ethnography NAS, Yerevan)

On the territory of Armenia pulses were cultivated in Late Neolithic settlements of the Ararat Valley (Aratashen, Aknashen and Masis Blur) from 6th millennium cal. B.C.. The cultivation of small seeded lentil (*Lens culinaris* subsp. *microsperma*) and bitter vetch (*Vicia ervilia*) in these settlements was marked with considerable quantities. Cultivation of pulses was also applied in the Chalcolithic period of Ararat valley and in other regions (in lower scales outside the Ararat Valley) until the Early Bronze Age. There are no records of agricultural activity over pulses on the territory of Armenia from the Early Bronze Age up to the Van Kingdom (Urartu) in the Iron Age when the pulses cultivation resumed and even blossomed (lentil, pea, chickpea, bitter vetch, faba bean, etc). Possible disruption in pulses cultivation effective Early Bronze Age can be attributed to the environmental changes or be caused by the spread of agricultural traditions of the high mountainous population. Arguments supporting this working hypothesis will be discussed in this presentation.

### **Archaeology and Geography in the South Caucasus Highlands, Georgia**

**Jessie Birkett-Rees** (La Trobe University, Melbourne)

The highland plateaus and mountain ranges of southern Georgia, northern Armenia and northeastern Turkey form a complex setting in which to investigate long-term trends, processes and interactions between communities and landscape. I present initial results from an archaeological survey project in the southwestern highlands of Georgia which is employing systematic survey techniques to investigate the diachronic archaeological record across the study area's varied environment. Archaeological work has been limited in these highlands (a militarised frontier for much of the Soviet era) yet this region, in the upper reaches of the Kura River valley, is revealing a significant Bronze Age record. This includes the settlement site of Chobareti, under excavation since 2011 by the Georgian-Australian Investigations in Archaeology project, which is revealing the importance of upland agriculture in the late fourth millennium. Survey of the elevated plain which Chobareti overlooks and the surrounding highlands has revealed features of the Bronze Age archaeological landscape including burials, earthworks and eroded exposures containing pottery and lithics. In outlining these findings I consider the reasons for the distribution of archaeological features and the questions these raise. Alongside intermediate, geomorphological factors and site formation processes, artefact distributions provide an indication of past occupation practices in the highlands which include long-term habitation and modification of the landscape.

### **Environment and Subsistence: The Geosphere, Ecosphere and Human Interaction**

**Bina Gandhi Deori** (Visva-Bharati University, Santiniketan)

The People of the Mountains of Arunachal Pradesh, India. Arunachal Pradesh, the north-easternmost state of India is also the most forested state of India. The topography of Arunachal Pradesh is characterized by an undulating hilly terrain,

towering hill slopes, enthralling river valleys and imposing peaks. This mountainous region is inhabited by as many as 26 major tribes and several hundred sub-tribes. For a very long time the region remained remote from mainstream India due to its location in difficult terrain with impenetrable vegetation. This inaccessible topography has prevented regular inter-communication between the indigenous communities living in different valleys. Mountains played a very significant role in the life of these tribes. The inaccessible topography but the availability of edible wild plants and animals in surplus of the region provide the present population a unique strategy to survive in its natural setting and this interaction resulted in a unique individual adaptive strategy for the tribes. Most of the tribes are animists; they worship mountain deities and tree spirits. This paper attempts to understand the crucial human-environment relationship; how the mountains shaped the culture of the tribes of Arunachal Pradesh.

### **Fog, Mountain and Desert: Human-Environment Interactions in Lomas de Lachay, Peru**

**Piotr Kalicki** (Jagiellonian University, Kraków), **Tomasz Kalicki** (Jan Kochanowski University, Kielce), **Piotr Kittel** (University of Lodz, Lodz)

Lomas de Lachay region is located on the desert, western coast of South America and hiatus were found. Moreover, we may also observe a clear trend of subsistence changes from intensive agriculture to extensive pastoralism of camelids. We suggest that these phenomena may be related with fluctuations of El Niño frequency. During periods of frequent El Niño torrential rains alimented springs, which were active during dry season serving as water sources for population of permanent settlements. However, when El Niño episodes were occasional, human groups had to withdraw from Lomas de Lachay and exploit its natural resources only seasonally. A progressive shift from agriculture to pastoralism is also related with a gradual increase of aridity in Lomas de Lachay region, due to the humidity deposited on first ridges of the Andes by advective fogs during the humid season peculiar, fog-alimented ecosystem (lomas) formed there. It attracted human groups since the early Holocene and complex societies appear early in that region (ca. 1800 BC). Therefore Lomas de Lachay, as threshold environment, constitute a perfect case study for the studies of human adaptative strategies to fragile mountain and desert ecosystem. In Lomas de Lachay a number of settlement phases separated by long.

### **Sudetic Resource Base in the Economy of Early Medieval Societies**

**Ewa Lisowska** (University of Wrocław, Wrocław)

The presented research are focused on the quarrying activities in south-western Poland during the Early Middle Ages (VIth - XIII th century). Based on several complementary petrographic analyses (electron microprobe analysis, rare earth elements analysis, x-ray diffraction) of stone artefacts it was possible to indicate the main rock groups which were quarried in the Early Middle Ages in Lower Silesia. Quarrying activities were focused in several distinct areas. In the Strzebińskie Foothills quartz schists, marble and rock crystal was exploited. Well preserved granite quarries were recognized in the Ślęza Massive. Lots of quernstones was made from this rock type. In the area of Kamieniec Ząbkowicki and Niemcza mica schist and mylonite were quarried. Sandstone for building churches was extracted in the Bolesławiec region. All analysed objects caused that the provenance studies of stone distribution were possible to reconstruct stone raw material economy during the Early Middle Ages in south-western Poland.

## **POSTERS**

### **The Beginnings of the Mountaineer Settlement in the Czech Republic – A Case Study from the Bohemian Forest**

**Katarína Čuláková** (Charles University, Prague), **Jan Eigner** (Masaryk University, Brno), **Milan Řezáč** (Masaryk University, Brno)

Information about human activity in mountaneous areas during prehistory are rather scarce. Most of the evidence comes from isolated finds and systematic prospection is focused on Medieval and Modern period. Thanks to the oscillation of water level in a dam, remains of a Mesolithic settlement were found in the lower parts of the Bohemian Forest Region. Our project links to this evidence and focuses on the upper parts of the Bohemian Forest Region and its history in the Mesolithic period. First a surface survey was conducted to choose the areas with high probability of settlement. Then test pitting was done, that was finally followed by a small excavation. Project continues with a survey of the surrounding areas. Main result of this project is an area with Mesolithic settlement; this settlement is situated near the water flow in length of about 2 km, in altitude of 1000 m above sea level. Except for this settled area, we found a few other remains of settlement, but not so intensive. The found Mesolithic settlement seems to date back to the end of the Early Mesolithic period. Raw materials come from Bavaria. Except for the Mesolithic settlement, remains of La Tene and a medieval settlement were found.

## Landscape Archaeology in Central Bosnia: An Interdisciplinary View on the History of Land Use in the Dinaric Alps

**Robert Hofmann** (University of Kiel, Kiel), **Walter Dörfler** (University of Kiel, Kiel), **Stefan Dreibrodt** (University of Kiel, Kiel), **Tim M. Schroedter** (University of Kiel, Kiel), **Johannes Müller** (University of Kiel, Kiel)

Extensive archaeological, macro-botanical, palynological, geomorphological, zooarchaeological and anthracological research was carried out in Central and Eastern Bosnia that opened a wide landscape archaeological perspective on the history of land use in the Dinaric Alps during prehistoric and historic times. The exploitation of the low mountain range and subsequently also of the high altitude mountains is proofed as a complex process that started at latest since the 6th millennium BCE during the Neolithic and accelerated since the second half of the 4th millennium BCE and during the Bronze Age. Already very early complementary land use forms with developed.



## T04S017 - ENVIRONMENTAL ARCHAEOLOGY AND ARCHAEOLOGY: DIVIDED WE STAND (STILL)?

**Organizers: Evangelia Piskin** (Middle East Technical University, Settlement Archaeology, Ankara), **Marta Bartkowiak** (Adam Mickiewicz University, Poznań)

Environmental archaeology today encompasses an ever widening suite of sub-disciplines: zooarchaeology, archaeobotany, palaeoanthracology, palynology, molecular studies, geoarchaeology, to name but a few. “Environmental archaeologists” are routinely called upon to collaborate in archaeological projects under the fashionable “interdisciplinary approach” umbrella. Despite numerous such studies addressing wider issues of archaeological research, the discipline remains to be seen as an auxiliary undertaking aimed at supporting “mainstream” archaeology. Often different specialists work alongside with each other but the results they produce have hardly any reference to other specialized analysis, even when they address similar issues. We intend to re-examine the state-of-the-art of the ongoing debate on heuristic potential of environmental archaeology in addressing a range of archaeological questions and the contribution of these studies to recognizing both large scale (migrations, settlement patterns) and small scale (households, individuals) arrangements of the past. We aim to bring together theoretical considerations and practical applications along with informative case studies convincingly illustrating recent developments. In particular, we invite papers addressing general issues pertaining to integration of environmental studies with the main body of archaeology, methodological and analytical frameworks making the integration efficient as well as case studies presenting new modes of interpretation and novel ways of extracting meaning from “ecofacts”.

## ORAL PRESENTATIONS

### Between “Second Zone Citizenship” and Over-Specialisation: What Future for Zooarchaeology?

**Anne Tresset** (CNRS, Paris), **Marjan Mashkour** (CNRS/ Natural History Museum, Paris), **Rémi Berthon** (CNRS, Paris), **Stéphanie Bréhard** (CNRS, Paris), **Jean-Denis Vigne** (CNRS, Paris)

The last two decades have seen the development of many new methods in the domain of zooarchaeology : palaeogenetics, biogeochemistry, geometric morphometrics, modelling and many other scientific fields are now concurring to shed light on more and more precise aspects of our past interactions with animals. Though fascinating in many respects, this relatively rapid diversification in many specialised sub-disciplines is challenging for the coherence and even the relevance of the zooarchaeological discourse and its contribution to the archaeological research. The risk of loss of meaning is real and all the more acute as there is in parallel a growing disinterest for more generalist and more comprehensive approaches. But beyond this, the risk of disintegration also stems from an often incomplete assimilation of zooarchaeology as a constitutive discipline of archaeology. There is an urgent need for a general reflexion of the scientific community on these issues and strong signals are to be delivered to the public funding bodies in order to inflect their future policies. In this paper we address these different problems by the depiction of the trajectories of two important research programmes our lab has developed over the past decade, one in the Near-east and one in Europe.

### Changing Perspectives: Exploring Ways and Means of Collaborating in Environmental Archaeology

**Gill Campbell** (English Heritage, London), **Ruth Pelling** (English Heritage, London), **Catherine Barnett** (Wessex Archaeology, Salisbury), **Liz Pearson** (Worcestershire County Council, Worcester), **David Smith** (University of Birmingham, Birmingham)

Archaeological projects are often complex and the project team is often large bringing challenges in terms of communication and the sharing of ideas and results. This paper will compare the experiences of specialists working in different parts of the sector (Higher Education Institutions, Small Business Enterprises, such as commercial archaeological units, Government sponsored bodies and freelance specialists) in Britain and discuss how new media and recording systems can aid collaboration. It will also examine how recent research on collaboration might help us to achieve better collaboration through new ways of working.



## The Relation between Environment and Knowledge: Environmental Archaeology as a Key to Elucidating Past Worldviews

**Evy Van Cauteren** (Ghent University, Ghent)

Taking inspiration from ecological anthropology, cognitive science and environmental philosophy, this paper aims to discuss the active role of the physical environment in the grounding and constitution of perception and knowledge in hunter-gatherer societies. The environment plays a part both directly, through its influence on people's sensory and affective experience, and indirectly, through the opportunities and constraints it creates for modes of sensorimotor engagement (behavioral action, interaction and mobility). It is argued that combining cognitive theories of enactivism with the critical use of ethnographic analogy allows us to sharpen our conceptual tools of inference, opening up possibilities to connect conceptions of the mind with the ecologies or ecosystems people inhabit. The ideas presented set the grounds for an integrative ecological-ideological framework in which our knowledge of prehistoric environments and the ways humans behaved within them becomes a possible source for the exploration of past worldviews.

## Ethnoarchaeology as a Means of Improving Integration: A Case of an Ethnozoarchaeological Study from Cyprus

**Angelos Hadjikoumis** (Marie Curie fellow at Muséum national d'histoire naturelle, CNRS, Paris)

Ethnoarchaeology in Europe has been relatively neglected over the last few decades. This trend has been usually justified by the fact that modernisation within the 20th century has eroded most traditional practices, especially those pertinent to animal and plant exploitation. This reality not only renders pressing the need to record any surviving traditional practices but, even more importantly, raises the question whether the study of partly, or even significantly, altered practices is useful to archaeological method and interpretation. Through an ethnozoarchaeological study of sheep and goat husbandry in Cyprus, this presentation highlights the benefits and limitations of such geographically-relevant studies and evaluates them as methodological and interpretational tools for archaeology. Ethnoarchaeological studies also have significant potential towards more efficient integration of different archaeological sub-disciplines, simply because the various components of modern or recent societies are visibly interrelated and de facto integrated. The presented study focused on zooarchaeological issues but it inevitably produced a wealth of information pertinent to archaeobotany, ceramics, metallurgy, landscape archaeology, social archaeology, palaeoeconomy, linguistics and many more aspects of the human existence. Through this specific case study and examples from it, it is argued that ethnoarchaeology can be used to achieve integration of different archaeological sub-disciplines.

## Bridging the Disciplinary Gap? Archaeo-... on an Urban Site

**Jonas Bergman** (Swedish National Heritage Board Contract Archaeology Service, Stockholm), **Jens Heimdahl** (Swedish National Heritage Board Contract Archaeology Service, Stockholm)

The *archaeological* project in the medieval town of Nyköping, south of Stockholm, was an attempt of interdisciplinary collaboration. The project plan focused on urban environment and living conditions. In order to succeed we constructed a documentation structure with stations where staff responsible for <sup>14</sup>C-sampling, dendrochronology, finds, *archaeobotany*, *zooarchaeology*, conservation, documentation, drawing, photography, excavation etc., were navigated to cross each others paths at these stations in order to share, in real-time, momentary insights and questions concerning contextual interpretations on site. We will present examples of environmental archaeology encompassing *archaeobotany* (macrofossil- and pollen analysis), *archaeoparasitology*, and geology. Parasite-, pollen- and macrofossil data are evaluated in terms of functions of different buildings for e.g. living, crop- handling/production and –consumption of food, brewing of beer, and use of medicinal plants etc. Real-time communication on site was of vital importance to manage a fully integrated excavation project, as well as a flat, non-hierarchic organization, and a genuine belief in the mutual dependence on other disciplines. This modus operandi turned out essential for the different disciplines to *actually contribute* to the comprehension of urban living conditions in Nyköping c. AD 1090-1400.

## Natural Science Results in Their Archaeological Context – Case Studies on the Early Bronze Age Settlement Fidvár Near Vrable, Slovakia

**Frank Schlütz** (Lower Saxony Institute for Historical Coastal Research, Wilhelmshaven), **Mariya Ivanova** (University of Heidelberg, Heidelberg), **Erich Nowaczinski** (University of Heidelberg, Heidelberg), **Felix Bittmann** (Lower Saxony Institute for Historical Coastal Research, Wilhelmshaven)

Fidvár is a location next to the recent town Vrable (SW-Slovakia) periodically settled by humans from the Neolithic to the Roman Period. Archaeological findings and geophysical investigations span burnt houses, ditches, pits and graves. The growing and shrinking of the Early Bronze Age settlement is documented by three ditches. The dimensions of the youngest



ditch and its accompanied rampart point to fortification. To reconstruct the living and the daily live conditions, geographical, geochemical, archaeobotanical and archaeozoological data have been collected from different geoarchaeological archives, especially ditches and pits. By comparative interpretation of their nature and character so different proxies like pollen, charcoals, snail shells and element analyses, the most realistic interpretations were identified on the background of the archaeological context. In this way we reconstructed the ditches with respect to age, dimension, slope vegetation, possible grazing and formally postulated water-fill. Like the older ditches, the pits were used for waste disposal. It was possible to reconstruct the velocity of the waste filling process of the pits and to discriminate different fireplaces/households as waste sources. Work on changes between subsequent households at one place and differences between diverse households of the settlement are in progress.

### **All or Nothing: Spatial Analysis and Interpretation of Archaeological Record Based on the Integration of Artefactual, Ecofactual and Contextual Data at the Byzantine Site of Komana, in Tokat Province of Turkey**

**Mustafa Nuri Tatbul** (Department of Settlement Archaeology, Middle East Technical University, Ankara)

In the Byzantine site of Komana a workshop/domestic building complex has been unearthed. In the initial phase as part of a further broader research, one room has been given special attention and investigated in terms of spatial, contextual and data types in order to understand the interpretative potential of the data that were recovered in various conditions from that room limits. The layer fill of the room contains abundant number of highly fragmented sherds of coarse storage vessels, burnt cooking pots and glazed fine ware. Large numbers of animal bone remains have also been recovered. Furthermore, a considerable number of economic plant remains have been partly recovered from the soil samples that have been taken from burnt layer, oven and pit contexts. Artefactual and ecofactual data have been collected from the layer fill by implementing 1 square meter grids for spatial references. This paper aims to conduct a detailed investigation of the particular room bringing together the spatial, contextual, artefactual and ecofactual data in different scales of recovery conditions.

### **A Methodological Case Study on the Biographies of Megalithic Tombs with Regard to Environmental Archaeology**

**Sarah Diers** (Kiel University Institute of Pre- and Protohistory and graduate school “human development in landscapes”, Kiel), **Denis Demnick** (Kiel University Institute of Pre- and Protohistory and graduate school “human development in landscapes”, Kiel), **Johannes Müller** (Kiel University Institute of Pre- and Protohistory and graduate school “human development in landscapes”, Kiel)

Recent excavations of two megalithic tombs in the Altmark, Germany, with several phases of utilisation and disturbance, provided the basis for an interdisciplinary research framework. On-site archaeobotanical, palynological and archaeological data sets and off-site palynological records are presented in this case study to answer research questions pertaining to the biographies of megalithic tombs in a small-scale region in Northern Germany. Stratigraphic information and radiocarbon dates were complemented with the detailed analysis of finds within the features, above all of pottery and botanical macro-remains. Furthermore, the local site histories are linked to changes in regional vegetation and pottery in the course of the 4th and 3rd millennium cal BC. Especially, light is shed on the research approach at the outset, on the development and appliance of methods during the research project and on the results in relation to the integration of prehistoric archaeology and environmental archaeology. The approach of addressing similar questions of chronology with different and with combined methods is evaluated. In addition, the potential of joint and individual research questions in this interdisciplinary collaboration has been assessed.

### **Historic Anthrosols - An Interdisciplinary Source of Knowledge**

**Katja Wiedner** (Institute of Agronomy and Nutritional Sciences, Soil Biogeochemistry, Martin Luther University Halle-Wittenberg, Halle), **Mechthild Klamm** (State Office for the Preservation of Monuments Halle/Saale, Halle), **Steven Polifka** (Institute of Agronomy and Nutritional Sciences, Soil Biogeochemistry, Martin Luther University Halle-Wittenberg, Halle), **Bruno Glaser** (Institute of Agronomy and Nutritional Sciences, Soil Biogeochemistry, Martin Luther University Halle-Wittenberg, Halle)

Ancient soils of anthropogenic origin are interesting research subjects for various reasons because these soils contain important information about e.g. agricultural practices, animal husbandry and livestock or handicraft activities. From an archaeological point of view, studies about land use reconstruction can lead to a deeper understanding of the functioning of life and economy in the historic past. In view of important global topics such climate change and sustainable agriculture, more attention has been paid to anthrosols exhibiting high nutrient and soil organic matter (SOM) stocks. One of the best known examples is terra preta de Índio in Central Amazonia. Therefore, the anthropogenic footprints recorded in archaeological soils are an interdisciplinary source of knowledge which wants to read. Modern bimolecular analyses such as faecal sterols, stanols

and stanones and bile acids or compound-specific isotope analysis are powerful tools to get deeper insights in i) historical environments and ii) in soil formation. Here, we present the results of the investigation of an Anthrosol found during an archaeological excavation of a Slavic settlement (10th/11th C. A.D.) in Northern Germany. Furthermore, we investigated fossil soils under a burial mound from Neolithic and Bronze Age located near the archaeological site of Nebra Sky Disk (Germany).

### **Archaeology and Archaeobotany: Archaeobotany still only an Auxiliary Sub-discipline in Archaeology? Archaeological Research in Budmerice (dist. Pezinok, SK-Slovakia)**

**Jana Hlavata** (Constantine the Philosopher University in Nitra, Nitra)

Since 2010, four excavation seasons have taken place on archaeological research at the site Budmerice. In the 20th century, there was discovered a fortified settlement site of the Maďarovce culture, EBA. From the beginning, one of the main objectives of the research was use of the widest possible range of interdisciplinary methods so that research could be defined actually as an “environmental research”. We can say that this research has become one of the few similar studies in contemporary Slovak archaeology. To compare the results of the research methods used in Budmerice with older Slovak research, we used the archaeobotanical results as particular. But the fact remains that despite vastly different results due to use of interdisciplinary methods, these methods still remain the only auxiliary sub-disciplines in archaeology.

### **The Extent of Modern Mitochondrial DNA in Reconstructing Domestication Processes**

**Ophélie Lebrasseur** (Department of Archaeology, Durham University, Durham), **Greger Larson** (Department of Archaeology, Durham University, Durham)

Domesticates have played an integral part in the development of human societies and culture. Dogs and chickens, in particular, have travelled far and wide with human societies and are now almost ubiquitous across the world, with the exception of a few islands. Up until a couple of decades ago, the domestication processes and past histories of domesticates was investigated mainly through archaeological faunal remains. The development of DNA techniques has provided a new array of investigations, and genetic studies have since then attempted to elucidate the questions of domestication based mostly on modern mitochondrial DNA data. In the following paper, we test the validity of modern mitochondrial DNA in retracing domestication and past histories of main domesticates, with a particular emphasis on dogs and chickens. In a time where Sanger sequencing is becoming cheaper and new techniques enabling higher genetic resolution are fast developing, we highlight the necessity for inter-disciplinary collaborations between geneticists and archaeologists and the use of ancient remains in order to reconstruct a more accurate view of domestication.

### **Environmental Archaeology Beyond Environment**

**Arkadiusz Marciniak** (Adam Mickiewicz University, Poznań)

Pivotal role of different categories of ecofacts in the archaeological process is no longer disputed among archaeologists of different theoretical underpinnings. However, their omnipresence in different kinds of studies does not translate automatically into producing well grounded accounts on different aspects of the past. The papers presented in the session offer a unique opportunity to reflect on the current developments in integrating these diverse categories of data with the main body of archaeological evidence. A critical evaluation of different conceptualizations, interpretive frameworks, and applications shall contribute to re-defining these relations to meet challenges of a dynamically changing archaeology of today.

## **POSTERS**

### **The Beginnings of the Early Iron Age in South-Western Iberia: Integration of Archaeological Sciences in Practice**

**Michał Krueger** (Adam Mickiewicz University, Poznań)

The main purpose of this paper is to present the basics of an ongoing project on the nature of the first contacts between indigenous communities of the Iberian Peninsula and Phoenician newcomers. According to the current state of research, the origin of foreign artifacts found in local context is in most cases uncertain. This paper attempts to show how to overcome present problems with so called “imports”. By using a highly sensitive portable X-Ray Fluorescence (pXRF) analyzer it is expected to establish the origin of raw materials used in the making of this pottery and therefore reveal whether wheel-made vessels are actual long-distance imports or just result from a practice of imitation. The chronological aspect of this multidisciplinary project includes stratigraphic and seriation evidence combined with AMS radiocarbon data, employing advanced Bayesian statistics. The results of this correlational study will provide useful insights not only for the diachronic interdependences between Phoenician colonies and indigenous settlements, but also are hoping to provoke debates on integration of archaeological sciences.

## Environmental, Catastrophic Events and Cultural Change in the Cost of the Atacama Desert, Northern

**Diego Salazar** (Departamento de Antropología, Facultad de Ciencias Sociales, Universidad de Chile, Santiago de Chile), **Valentina Figueroa** (Instituto de Investigaciones Arqueológicas y Museo R.P. Gustavo Le Paige S.J., Universidad Católica del Norte, San Pedro de Atacama), **Carola Flores** (University of California, Santa Barbara), **Jean Louis Guendon** (MMSH, Université de Provence, Aix-en-Provence), **Gabriel Vargas** (Departamento de Geología, Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile, Santiago de Chile)

In this paper we will discuss results of an ongoing project aimed at understanding the historical process of hunting-gathering communities who inhabited the coast of the driest desert in the world (the Atacama) during the Holocene between ca. 10.000 to 3000 cal BP. The study area is characterized by lack of sources of permanent water (only available in springs) and a very narrow coastal shelf limited to the east by the Cordillera de la Costa (2000 masl) and to the west by the Pacific Ocean. Here the ocean presents a highly productive environment which allowed human occupations throughout the Holocene despite arid conditions. Our reconstruction of the cultural history of this area has shown moments of dramatic shift in the settlement patterns and cultural practices of local populations, especially at ca. 7500 cal BP, 5500 cal BP and 4500 cal BP. We attempt to explore the relationship between these cultural changes and environmental conditions. Prominent among these conditions were the optimum climaticum, humid pulses, changes in sea temperature and catastrophic events such as El Niño events (ENSO), marine transgressions and earthquakes/tsunamis. We are especially interested in a historical understanding of human decisions within this extreme and changing environmental context.

## An Interdisciplinary Study of Agrarian Resources in Bronze and Iron Age Palestine

**Andrea Orendi** (University of Tübingen, Tübingen)

The Agricultural developments in the Bronze and Iron Age Levant (3600 – 332 BC) have so far not been comprehensively investigated. A new project, “The land flowing with milk and honey: development and significance of agrarian resources in Bronze and Iron Age Palestine” which is part of the recently established SFB “Resource Cultures” at the University of Tübingen will try to fill this gap. The project is characterized by the combination of different scientific approaches namely the archaeobotanical, the ethnographical, the archaeological, the iconographical and the philological method. The discussion about combining archaeological and historical sources generated some methodological models which describe the relationship between these two scientific fields. Also since many decades ethnographical studies serve as analogy especially for interpreting prehistoric finds and human activities. So far there are no theoretical concepts about the relationship of natural scientific datasets and archaeological / historical sources. This contribution wants to present some preliminary thoughts about the before mentioned desideratum within methodological approaches in archaeology. The investigation of agricultural resources in Palestine serves as a large scale case study.

## The Beginning of “Ecological Footprint” in Archaeological Sites: Effects Registered in Ancient Bones in SW Iberia

**Eloísa Bernáldez-Sánchez** (Laboratorio de Paleontología y Paleobiología, Instituto Andaluz del Patrimonio Histórico, Sevilla)

During several years our Laboratory of Paleontology and Paleobiology (IAPH) has researched the paleobiological heritage preserved in Holocene archaeological sites in the South of Spain. Shells and bones are the most common biological remains in ancient rubbish dumps produced by humans societies. Studying these materials we attempt to quantify the human impacts on the environment throughout history: the Paleoeological Footprint. The results show some changes in Biodiversity, Biogeography and Morphobiometry of certain species. Nevertheless we could not resolve some questions using traditional tools in Paleobiology. Currently the application of new techniques and methodologies in fossils is allowing us to get more information. We are carrying out the research project “New technical and methodological approach for the protection and knowledge of organic archaeological heritage: Paleobiology, ancient DNA and physicochemical analysis” (UPO in collaboration with IAPH) with two main objectives: 1. Developing a protocol for using the Experimental Sciences in heritage palaeobiological to ensure the information preserved in fossils. 2. Apply these sciences in the study of bone records of several Holocene archaeological sites from SW of the Iberian Peninsula. The objective is to carry out a holistic interpretation of the ecological changes since the Paleobiology, the Genetic and the Chemical analysis.

## Some Features of Neolithic Sites Equipping. Multidisciplinary Research

**Irina Khurstaleva** (Saint Petersburg State University, Saint Petersburg)

During all the historical epochs, a territory between the Western Dvina and Lovat’ rivers served as a link between the Central and Eastern Europe (Mazurkevich, 1997). The series of Neolithic sites were discovered here (temporal sites of hunter-gatherers, long-termed settlements and pile-dwellings). The multidisciplinary approach was used to study not only these sites, but the region as a whole. Archaeologists, paleozoologists, paleobotanists, palynologists, geoarchaeologists

and other specialists worked here. Some results of this complex research are shown in the study. Natural and climatic conditions and the ways of human adaptation are described. It was established that the Neolithic sites were closely related with Glacial lakes, and their population adapted to different landscape changes (such as a level of water for example). The main sources of food and raw materials were found out.

### **Klementowice: Work Alone – Create Together**

**Tadeusz Wiśniewski** (Institute of Archaeology, Maria Skłodowska Curie University in Lublin, Lublin)

The project “Klementowice - settlement in the eastern peripheries of Magdalenian culture circle” aims to analyze and publish interdisciplinary research results at the archaeological site in Klementowice, Eastern Poland. The archaeological works were conducted between 1981-1982 and 2007-2011. They revealed the existence of a camp founded by the people that penetrated those regions at the end of the Ice Age (approx. 15 thousand years ago). The unique character of the site is connected with its location as well as the amount and nature of the obtained archaeological artefacts, whose equivalents can be found across other sites in Middle and Western Europe. The usage of a wide spectrum of archaeological and natural sciences methods allows for a comprehensive compilation of the results of the study thus enriching the knowledge of the site itself and creating new possibilities for the interpretation of sources. The archaeological studies in Klementowice are not only excavations but also their popularisation based on the cooperation with the local authorities and the presence of the studies in international scientific circles and the media.

### **The Project Roztocze – The Ancient Terra Incognita? (Settlement Micro-Region in the Area of Ulów in South-Eastern Poland in Prehistory and Its Background)**

**Barbara Niezabitowska-Wiśniewska** (Institute of Archaeology, Maria Skłodowska Curie University in Lublin, Lublin)

The main aim of this project is the reconstruction and the interpretation of prehistoric settlement processes in the vicinity of the Ulów village in the Middle Roztocze (south-eastern Poland) on the basis of results of different researches: archaeological, anthropological, geomorphic, geological, geodesic, mineralogical-petrographic, botanical and geophysical. The core of the project will be the analysis of the materials gathered during excavations carried out in Ulów from 2001 to 2013. During these years, six archaeological sites were recognized and explored to varying degrees. The material discovered there supports the existence of the settlement from the Late Paleolithic Period to the Early Middle Ages. Particularly intense settlement is associated with the late Roman Period and the early stage of the Migration Period. In order to gain the whole settlement reconstructing processes and their environmental conditions, the research needs a wide range of methods and tools from other scientific disciplines, especially biological and natural sciences.

### **Mapping Prehistory: An Essay of Modelling for the Site Locations on Environmental Settings in Eastern Thrace**

**Şafak Nergiz** (Christian-Albrechts-University Kiel “Human Development in Landscapes”, Kiel)

Eastern Thrace, located between Southeastern Europe and Anatolia, takes an important place in the stage of the cultural development. History of the research does not have a long past in the region nevertheless archaeological researches have shed light on the cultural development of the region for over 30 years despite being one of the least researched regions of Anatolia. Obtained results from the region provided information for the place of Eastern Thrace in this process and remarked the role of it in the interaction between cultural regions and internal dynamics of the region as well. Aforementioned researches which continue presently have been actualized by taking into consideration not only archaeological but also environmental factors as natural environment, environmental settings and results of the cultural interaction at both throughout the region and on the basis of settlement. It is aiming to present a modelling study of the region here, can be thought as an essay for Eastern Thrace, based on the obtained results from the research mentioned above, which shows the distribution of the sites with respect to the environment.



### **T04S018 - WHO LIVED IN LONGHOUSES? NEW DIRECTIONS FOR NEOLITHIC HOUSEHOLD STUDIES**

**Organizers: Penny Bickle** (University of Bristol, Bristol), **Lech Czerniak** (University of Gdańsk, Gdańsk)

The present state of research provides a good platform for new discussions about the LBK and post-LBK house and household, especially in its social context. DNA analysis, isotope studies and the wealth of new data from excavation and material studies are casting new light on the old concept of colonisation and uniformity of practice. This paves the way for interpreting the Neolithic house, with its symbolism and practicalities of everyday life, through comparison with the Neolithic in Anatolia and south-eastern Europe. Secondly, the concept of ‘House Societies’ offers a new perspective for deliberations on social organisation and transmission, including changing ownership and inheritance of houses, the functional reasoning

behind internal divisions, the use-life of a house, the number of inhabitants in a house and the demographic potential of a village. However, many questions remain to be tackled; does identity centre around or on houses? Were hunter-gatherers implicated in the creation of the Neolithic longhouse? How much competition and/or co-operation existed between different households? How was everyday life around a house organised? Were households defined by kinship or were other social relationships important? We welcome the submission of papers addressing these themes in the context of the LBK and post-LBK cultures.

## ORAL PRESENTATIONS

### Who Lived in LBK Longhouses? Heirlooms and Roots of LBK Societies in East-Central Europe

**Lech Czerniak** (University of Gdańsk, Gdańsk), **Joanna Pyzel** (University of Gdańsk, Gdańsk)

This paper presents an exceptional discovery: part of a ceramic 'altar' deposited in a grave next to the youngest longhouse within an LBK village. The village lies not far from Krakow and is dated to the Zofipole phase (= 'ačková' – Flomborn). The altar shows signs of long-term usage (storage) and intentional fragmentation. Its form and decoration suggest that it was brought to this site from an older 'southern' cultural context. This provides the grounds for its interpretation as a 'family heirloom' handed down over many generations. The authors discuss the context of this artefact and analyse the potential consequences of its discovery for the interpretation of the origins of local LBK societies. The authors believe that the 'altar' possibly provides evidence of LBK societies (including those living relatively far north of the Rhineland) descending from the first farming communities inhabiting the Balkans. This hypothesis provides the basis for a broader discussion on the subject of the origins of the LBK.

### The Location of Domestic/Kitchen Zones in LBK Longhouses

**Katarzyna Inga Michalak** (University of Gdańsk, Gdańsk), **Łukasz Połczyński** (University of Gdańsk, Gdańsk)

The authors present the results of a study aimed at examining the relationship between features whose function was clearly associated with everyday household activities (e.g. hearths, storage pits) and the composition of refuse within these features. Previous analyses of refuse deposited in lateral pits has shown that the long-term process of deposition and, in consequence, the overlapping of various activity areas, make it difficult to draw any conclusions about the functional division of space around a house. However, analysis of the presence of various types of find (pottery, flint, stone tools and grain remains) in features of specialised function indicates that in some instances it is possible to identify domestic/kitchen zones located both outside and inside the house. In particular, the distribution of grain remains in areas clearly evidencing the use of fire can be interpreted as locations associated with food storage and processing. This analysis was based on 59 longhouses recorded at two large, long-term LBK settlements in southern Poland.

### Constructing the Life Patterns through the Dump. A Contribution to Spatial Organisation of Long House Life, Example of Hrdlovka Settlement (Czech Republic)

**Václav Vondrovský** (University of South Bohemia, České Budějovice), **Jaromír Beneš** (University of South Bohemia, České Budějovice), **Michaela Divišová** (University of South Bohemia, České Budějovice), **Lenka Kovačiková** (University of South Bohemia, České Budějovice), **Petr Šída** (University of Hradec Králové, Hradec Králové)

The contribution aims to present extraordinary aspects of the Neolithic settlement in Hrdlovka (NW Bohemia, Czech Republic). In spite of rescue character of the excavation (1987 - 1990) caused by large scale coal mining, Hrdlovka represents one of the largest Neolithic settlements in the Czech Republic. The site provided 71 of LBK and SBK long house ground plans, but only 16 were uncovered completely. Some of them revealed remarkable construction details as well as associated sunken features. Analysis of the houses and spatially associated features is based on ceramic fragments, animal bones, stone industry and daub using methods of multivariate statistics. Hypotheses concerning long house spatial organisation and everyday life practicalities will be tested and presented.

### Different Preferences of Artefacts, Different Residues and Different Activities of Inhabitants

**Ivan Pavlů** (Univ. Hradec Králové, Technical School Prague, Prague), **Veronika Mátlová** (Univ. Hradec Králové, Technical School Prague, Prague), **Vladimír Filip** (Univ. Hradec Králové, Technical School Prague, Prague)

In the sets of artefacts characterizing the activities of the inhabitants of individual houses, we focus on specific differences. We can determine different preferences in the main categories of artefacts at Neolithic longhouses. These preferences are demonstrated especially in functional types of everyday use objects, such as ceramic vessels and tools. Fragments of ceramic vessels also serve as a source of organic lipophilic material, which can selectively bind to and stay in the porous matrix of the ceramic. Using modern techniques of analysis, we can determine differences in the composition of organic residues in relation to individual objects. We can also study morphological differences of these objects. These differences



can be indirectly linked to the houses and their classification according to independent criteria. We can therefore interpret the identity of the houses' inhabitants from different points of view.

### **Spatial Analysis of Five LBK Longhouses at Marainville-sur-Madon (Vosges, France), an Archaeobotanical Approach**

**Laura Berrio** (Université Paris 1 Panthéon-Sorbonne/UMR 8215 Trajectoires, Paris), **Julian Wiethold** (Institut national de recherches archéologiques préventives (Inrap), laboratoire archéobotanique - UMR 6298 ArteHis, Université de Bourgogne, Metz), **Vincent Blouet** (Service régional d'Archéologie de Lorraine, Metz)

Between 1986 and 1988, the excavation of the LBK settlement of Marainville-sur-Madon (Vosges, France) uncovered five different buildings and a small group of graves. Architectural and pottery studies underlined the fact that the buildings were not contemporary. We are estimating that the LBK occupation consisted of only one building that was replaced or reconstructed at least four times. The site of Marainville was systematically sampled for archaeobotanical analysis. A total of 22,078 charred macro-botanical remains were obtained from 109 samples, representing 354.5 liters of sediment and deriving mainly from the central postholes of the buildings and from some associated pits. On the scale of the domestic unit, the spatial analysis of the density of charred seeds per litre and of the recorded taxa shows a heterogenic distribution of the data. The aim of this paper is to propose a model of the internal distribution of the domestic space of LBK longhouses, based on the archaeobotanical evidence. A vestibule, occupying the southeast area, allows passage towards the domestic activity zone; a culinary preparation area (hearth and preparation of cereals) is situated in the central part of the house. A temporary storage zone (pulses and cereals) has to be proposed in the northwestern part, at the rear of the house.

### **Long vs Small Houses: An Integrated Technological and Socio-Economic Approach of LBK Societies**

**Louise Gomart** (CNRS/UMR Trajectoires, Paris), **Lamys Hachem** (INRAP/UMR Trajectoires, Paris), **Caroline Hamon** (CNRS/UMR Trajectoires, Paris), **François Giligny** (Université Panthéon-Sorbonne/UMR Trajectoires, Paris)

As part of this talk, we will present a cross perspective of the social structure of LBK populations, by focusing on the late LBK settlement of Cuiry-lès-Chaudardes (France). Our research is based on a statistical analysis of data collected on animal remains, macrolithic tools and ceramic forming processes. By comparing the results of these material studies to the analysis of the houses architecture, we intend to raise the issue of LBK communities socio-economic organization. This approach will contribute to address different hypothesis concerning the structure of LBK populations, as farmers, cattle and sheep raisers, hunters, pottery makers, but also as members of lineages or clans, potentially ruled by a repartition of technical and economic activities according to gender. In this framework, the processes of a village evolution from its foundation to its desertion will be addressed. We will also bring up the problem of the status of hunting within LBK societies, and thereby will ask the question of integration in the village of Mesolithic populations, which seems to be unlikely given the results.

### **Settlement Burials at the Karsdorf LBK Site, Saxony-Anhalt, Germany: Biological Ties and Residential Mobility**

**Corina Knipper** (Curt-Engelhorn-Centre Archaeometry Mannheim, Mannheim), **Guido Brandt** (Institute of Anthropology Univ. of Mainz, Mainz), **Nicole Nicklisch** (Danube Private University, Krems, Austria, and Institute of Anthropology Univ. of Mainz, Mainz), **Robert Ganslmeier** (State Office for Heritage Management and Archaeology Saxony-Anhalt and Heritage Museum, Halle), **Mechthild Klamm** (State Office for Heritage Management and Archaeology Saxony-Anhalt and Heritage Museum, Halle), **Kurt W. Alt** (Danube Private University, Krems, Austria, and HighTech Center University Hospital Basel, Basel)

The LBK settlement of Karsdorf (Saxony-Anhalt, Germany) revealed 24 longhouses and 34 associated burials. They were investigated in an interdisciplinary study focusing primarily on biological relationships and mobility within the community. Males, females, and subadults were buried individually or in groups in pits accompanying longhouses suggesting family relationships. The mitochondrial DNA (mtDNA), however, revealed only few biological relations among them. The rare possible relatives were found in different houses, indicating very low continuity of maternal lineages. Strontium isotope ratios of human tooth enamel point to differentiated land-use patterns or interaction of the Karsdorf community in the Unstrut river valley with people from settlements in typical loess locations. Representatives of both isotope ranges distinguished occur among all burial groups. The integrated interpretation of all data suggests exchange of people within consolidated networks of LBK neighbouring communities.

### **A Resonating Success? Tracking Architectural Change and Social Change in Neolithic Longhouses**

**Daniela Hofmann** (University of Hamburg, Hamburg)

The house is perhaps the defining symbol of LBK identity as a whole – the effort that went into building, the sheer size of some of the structures, and the fact that they were repeated many thousands of times across the LBK distribution makes them a central social node. In Lemonnier's words, houses are resonators: they bundle concerns from a variety of



social fields in a non-verbal way. The expectation is that paradoxically, this makes them open to constant small changes in response to a variety of factors, and at the same time extremely conservative with respect to more fundamental transformations. This paper attempts to trace the kinds of social relations a house was part of, including the perpetuation of the patriline, the incorporation of new kin, and relations with the inhabitants of other contemporary houses. On this basis, can the fundamental architectural transformations in the course of the LBK, and during the LBK's successor cultures, inform us on changes in the way these many relations were emphasised?

### House Societies in the Neolithic?

**Penny Bickle** (University of Bristol, Bristol)

Sociétés à maison (house societies; Levi-Strauss) is a theory of how households operate to ensure that such relationships can be reproduced. In arguing that the household was viewed as a 'moral person', Levi-Strauss draws on two related processes of reproduction: the legitimization of the household through kinship and its material and immaterial embodiment. Such themes are useful for examining prehistoric domestic architectures because they bring together social relationships and their material expression over time. However, in contrast to Levi-Strauss' model of descent — in which the continuation of the house is prioritised over and above patrilineal or matrilineal descent systems — recent studies from isotope analysis, and to a certain extent aDNA, have presented the Linearbandkeramik (LBK) as a strongly patrilocal and patrilineal society. This paper will explore whether this means the notion of house societies can not apply to the early Neolithic and whether we can track LBK descent practices. Furthermore, Levi-Strauss envisaged house societies as a form of organisation practised by societies in the process of changing from kin-based to class-based social structures. While this may not be the particular case for the LBK, the role of the house in social relationships in transition will also be explored.



### T04S019 - ARCHAEOLOGICAL AND ETHNOARCHAEOLOGICAL APPROACHES TO THE STUDY OF POST-MEDIEVAL RURAL SETTLEMENTS

**Organizers:** **Catriona Mackie** (University of Liverpool, Liverpool), **Francesco Carrer** (University of York, York), **Anna Maria Stagno** (University of the Basque Country, Vitoria Gasteiz)

This session aims to explore the study of rural post-medieval buildings, settlements, and their surrounding landscapes, focusing on the interplay between present and past societies. The study of rural contexts in the post-medieval period lends itself to ethnoarchaeological approaches, combining various forms of evidence including documentary, oral, pictorial, and linguistic sources. This wealth of evidence allows us to construct a more nuanced view of rural society and culture than is often the case for earlier periods, and encourages a more direct comparison between different disciplines (e.g. archaeology, ethnology, history). This field of research not only informs our knowledge of the post-medieval period, but allows us to look at the transformations of rural settlements and societies over time: from the medieval to the post-medieval and from the post-medieval to the contemporary. The session offers a forum for the discussion of archaeological and ethnoarchaeological approaches to the study of post-medieval rural settlements focusing on: - socio-economic dynamics relating to the transformation of rural architectures and settlements - the reconstruction of local practices of environmental resources management (and their transformations) through the study of rural settlements. Case studies and papers which explore different theoretical or methodological approaches are particularly welcome.

### ORAL PRESENTATIONS

#### Current Seasonal Rural Structures in the Western Italian Alps: An Ethnoarchaeological Approach

**Francesco Carrer** (University of York, York), **Federico Panighel** (Dipartimento di Ingegneria e Architettura, Università di Trieste, Trieste)

In this paper, the methodology and initial results of this alpine ethnoarchaeological research are presented. In summer 2013 three traditional upland seasonal sites, still used by the local herders, were recorded and surveyed in the Val Maudagna (Cuneo province, western Alps, Italy). These sites comprise dry stone huts, which were exploited as seasonal dwellings, as well as summer dairies. A topographic survey of the structures and their furniture was undertaken, and this enabled important inferences to be made about the building technique and the distribution of functional areas within the huts. Artefacts and fragments of artefacts, displaced on the internal hut floor surface have been accurately recorded and located, in order to identify patterns of assemblage that might recall specific spatial behaviours. Furthermore, soils samples have been taken in order to find chemical markers of intra-site activities. All of the spatial information has been processed using CAD and GIS. Although the analysis of the collected data has just begun, the preliminary results are very promising. Further analysis may enhance our understanding of those dry stone huts that have been excavated in different areas of the Alps (and other mountain contexts) which date from the late Neolithic to the post-medieval period.

## Post-Medieval Mountain Resource Management in the Agno-Leogra Ridge (Northern Italy)

**Mara Migliavacca** (Dipartimento dei Beni Culturali, Università di Padova, Padova), **Anna Ferrarese** (Dipartimento dei Beni Culturali, Università di Padova, Padova)

Since 2011, an ethnoarchaeological project in the Veneto mountains has been investigating the traces left by past human exploitation and the shaping of the present landscape along a pre-alpine ridge in the Vicenza district. At the moment, the most important detected traces are connected with the exploitation of the minery sources of the Recoaro-Schio minery district. The small village of Rivabella (Torrebelvicino, Vicenza), now abandoned and hidden by a thick vegetation, was devoted to the extraction of Kaolin, or China-clay in the 1940s. This village was identified, surveyed, drawn, and its features interpreted, using both historical and ethnographic sources. The historical sources also disclosed the close relationship among mining, pastoral, and agricultural practices, involving the same people, demonstrating the effective management of the poor local environmental resources.

## An Archaeology of the Post-Medieval Landscape of the Mountains in Northwest Portugal. The Case Study of the Lindoso's Territory

**Luís Fontes** (University of Minho, Braga)

Based on archaeological, historical, ethnographic and geographical data, it has been possible to determine the socioeconomic dynamics of the post-medieval transformation of the Lindoso's landscape, in the mountainous region of Northwest of Portugal. It is during the modern and contemporary eras that agro-forestry-pastoral activities are increased. In this period, the agricultural economy modelled a landscape that had the following three main features: a concentrated settlement with agricultural fields (ager) constantly worked near the villages at the foot of the mountain; an intermediate woodland area (saltus) functionally linked to intensive farming; and a wide treeless area (mons) covering the upper half of the mountain, which was used seasonally for extensive grazing. Through the architectural importance given to shelter huts and granaries, facilities related to the two main economic activities (grazing and the cultivation of corn) the Lindoso's landscape met, during the 18th and 19th centuries, its most significant monumental expression revealing the interdependence between human beings and environment. This paper will highlight this interdependence, through the characterization of constructive solutions of land use and the analysis of the spatial distribution of the huts, granaries, and other structures, in relation to the socio-economic organization of the landscape.

## Changing Landscapes. The End of Castles and the Birth of New Identities in Central Italy at the End of the Middle Ages: An Archaeological Approach

**Elisa Pruno** (University of Florence, Florence), **Chiara Marcotulli** (University of Florence, Florence), **Chiara Molducci** (University of Florence, Florence)

The paper addresses the issue of transformation of the Medieval rural landscape from an archaeological point of view, through the end of "incastellamento", towards new forms of land management that have endured almost unchanged until modern times. We will examine the "decastellamento" between the 13th and 14th centuries, in three regions of Central Italy, through traditional phenomena and the specific example of Medieval new towns. The research project on Mugello, Tuscany, concerns the contrast between the Ubaldini counts and the town of Florence that caused the end of castles and, in particular, the demolition of Montaccianico, with the subsequent foundation of "terra nuova" of Scarperia by Florentines. We will discuss the transformation of the 'territorial system' of the Lordship of Guidi Counts, between Tuscany and Romagna, towards a modern landscape, through the investigation of the castle of Modigliana, the origin of the Counts power, and of the rural areas of Cetica, in Casentino. We will also examine the founding of L'Aquila, a Medieval "civitas nova". Founded through urban migration from the castles of the mountains, it was commissioned by the Papacy, the Empire and by the local Lordships to better control the Central Apennines, with specific forms of urban design.

## Comparing Dynamics of Mountain Settlements in the Pyrenees. GIS on Archaeological Heritage and Pastoral Territories Modeling. The DEPART Project

**Mélanie Le Couédic** (Université de Pau et des Pays de l'Adour, Pau), **Ermengol Gassiot Ballbè** (Grup d'Arqueologia de l'Alta Muntanya Universitat Autònoma Barcelona, Barcelona), **Christine Rendu** (CNRS FRAMESPA UMR 5136 Toulouse II le Mirail), **Carine Calastrenc** (CNRS FRAMESPA UMR 5136 Toulouse II le Mirail), **Ignacio Clemente** (Institut Milà i Fontanals Consejo), **Marc Conesa**, **Abel Fortó García**, **David García Casas**

During the last 20 years, the development of archaeological research on the dynamics of high pastoral systems in the Pyrenees has generated the creation of a dozen interdisciplinary study areas throughout the massif. These areas have associated historical, ethnological, archaeological, and environmental studies. They were conceived as laboratories to study interactions between societies, their space and their environment in the long term. The amount of collected data (over 500

new sites from the Neolithic to the contemporary period, comprising high-altitude pastoral sites, such as shepherds' huts, enclosures, and sheep caves) now allows for the comparison of the development of these high-altitude territories. This comparative approach is the objective of the research group DEPART (Dynamics of mountain areas in the Pyrenees. GIS on Archaeological Heritage and modeling pastoral territories, funded by the Working Community of the Pyrenees). This paper aims to present an initial assessment of methods, study areas and our primary objective of experimental data sharing with the construction of a common GIS from a sample corpus based of post-medieval sites.

### **Common-Lands and Rural Settlements in the High Trebbia Valley (Ligurian Apennines) between the 17th and 20th Centuries**

**Anna Maria Stagno** (Research Group on Cultural Heritage and Landscapes-GIPyPAC of University of the Basque Country; Laboratory of Environmental Archaeology and History-LASA of the Università degli Studi di Genova, Vitoria Gasteiz), **Vittorio Tigrino** (Dipartimento di Studi Umanistici, Università degli Studi del Piemonte Orientale "Amedeo Avogadro", Vercelli)

A series of multidisciplinary field studies carried out by researchers from Genoa and Eastern Piedmont Universities in the Trebbia valley - an area of the Ligurian Apennines characterized by a high density of common-lands - has allowed us to examine how archaeology can contribute to the understanding of common resources. If the existence of historical conflicts concerning common-lands from the Ancien Régime to the 20<sup>th</sup> century is revealed by documentary sources, rural archaeological investigations reveal that a direct relationship exists between environmental resources management, the claim of common rights, and the evolution of settlements patterns. In this framework, and through the use of various examples, this paper seeks to examine how the shape and characteristics of settlements could be studied as a part of the history of common resources. Thanks to the functional transformation of buildings, architectural archaeology offers a synthetic way through which to understand the economic organization of the hamlet and to evaluate the extent of husbandry and agriculture when compared to other activities. In doing so, it is possible to link the study of primary production areas and settlements, and to try and compare the continuity and changability of settlements, of common-lands conflicts, and of environmental resource management systems, with the aim of defining a new historical periodization.

### **Towards an Historical Archaeoethnology of Rural Settlement**

**Fidelma Mullane** (The Heritage Council, Galway)

Though frequently considered as prejudiced and stereotyped, post-medieval contemporary representations of Irish material culture can nonetheless provide significant information on aspects of rural settlement that cannot be found in other sources whether historical, cartographical or archaeological. An ethnographical analysis of historic texts and visual material from the accounts and illustrations of commentators who were external ('outsiders') to the culture they were describing, brings not just fresh thinking to postcolonial studies and the interpretation of outsider literature, it also provides new insights into important artefacts of material culture, such as, in this case study, post-medieval rural building practices in Ireland. My research will confirm 17th-, 18th- and 19th-century outsider descriptions and illustrations of Irish post-medieval settlement as valuable ethnographical documents when they are read and interpreted in the context of archaeological and historical evidence. Combining ethnographic research on historic vernacular dwellings found in Ireland today with a rigorous examination of ethnographic-type descriptions from post-medieval outsider narratives and archaeological research will establish an historical archaeoethnology of rural building, permitting the identification of important post-medieval construction practices, as well as their presence and traces in current historic and contemporary Irish rural settlement.

### **The Use of Modern Treatises on Agriculture for the Interpretation of Archaeological Remains: The Case of the Dairies**

**Jean-Yves Dufour** (Institut national de recherches archéologiques préventives UMR 7041, équipe Archéologies environnementales, Paris)

To recognize among archaeological remains, ancient farm buildings intended to shelter and manage the harvest, equipment and to stable livestock, it is necessary for us to understand what such buildings look like while still in use. In the Paris Region, we observe and record such buildings (farms and other structures) before demolition, and compare them with information contained within old treatises on agriculture. From the agronomic literature, we make an "archaeological reading", by extracting lines containing important information for archaeological interpretation. This "theory" of agricultural construction, based on contemporary observation and historical research, enables us to recognize and interpret almost fifty farming activities among our archaeological sites. The dairy is the place where the herder stores the milk to preserve it or to transform it into butter or cheese. Most farms were equipped with a dairy. The "archaeological reading" of old works of agronomy gives us the keys to recognize dairying activity areas. We then compare this "book" knowledge with two modern sites where the dairy can be easily identified: the castle and the mill of Roissy-en-France (France).

## **An Historical, Archaeological and Ethnoarcheological Cross-Over Study on Resin Tapping and Wood Tar Production: The Original Case of the “Bois A Fere Pegue” of the Toulon Hinterland (Southern France) during the 16th Century**

**Sylvain Burri** (CNRS, Aix-Marseille université, LA3M UMR 7298, Aix-en-Provence cedex 2)

Resin tapping and tar making are under-studied economic activities in South-Western Europe unlike in North, Central or Eastern Europe. Previous research in this area has focused primarily on the Roman period with relatively little work done on the medieval and post-medieval periods. In Provence, tar production, attested since late Antiquity, is well represented both in the literature, and from archaeological excavation, from the 13<sup>th</sup> century onwards. This presentation will focus on resin tapping and pitch production during the 16<sup>th</sup> and 17<sup>th</sup> centuries in the Toulon hinterland. The 16<sup>th</sup> century is a critical period because of the increasing demand for pitch for the shipbuilding activities of Marseille and Toulon harbors. To supply this demand, woodland owners created land parcels specialising in resinous products (such as raw and cured resin, and pitch), called “bois a fere pegue”, characterized by the rational and sustainable management of natural resources. This evolution is accompanied by a technical change in pitch production from a double-pot technique to the use of a tar kiln. One of these pitch-production sites, occupied from the mid-16<sup>th</sup> to the 18<sup>th</sup> centuries and known from documentary sources, has been excavated in La Roche Redonne (Le Castellet, France).

## **Fieldnames and the Study of Post-Medieval Rural Settlement in the North-East of Ireland**

**Eve Campbell** (NUI, Galway)

Drawing on a major community-led fieldname survey in County Louth, Ireland, this paper will explore the role of fieldnames and other microtoponyms in the study of post-medieval rural settlement and landscapes, and in the contemporary knowledges of place. Fieldname assemblages provide a diachronic perspective on landscape. Recently coined names sit alongside ancient toponyms, linking past and present understandings of place. Fieldnames speak to the reorganisation of the rural landscape through the processes of improvement. Consideration will be given to the multi-linguistic dimension of fieldnames in a post-colonial context, as well as the coincidences of collective agricultural practices in the eighteenth and nineteenth centuries with the endurance of the Gaelic language in regions of the county. Oral, vernacular understandings of place will be contrasted with official toponymic schemes found in the account books of landed estates. Fieldnames constitute part of an intimate knowledge of place gained by rural people through the rhythms of farming life. Shifts in landowning patterns, coupled with the modernisation of farming practices in the latter half of the twentieth century have resulted in the loss of this knowledge. This perception of loss and the desire to record this element of their heritage will also be treated.

## **Postmedieval Rural Settlement in Sardinia. Perspectives on the Archaeology of Deserted Villages**

**Marco Milanese** (University of Sassari, Sassari)

The paper proposes a synthesis of a research project on the abandoned villages of Sardinia from 16th to the 19th centuries. The objective of the project is to provide geo-referenced models in 3D, with the use of technologies UAV based on photogrammetric supplemented by geophysical and stratigraphic data. Of particular importance are bioarchaeological surveys, for characterizing paleoenvironmental, forestry, and agricultural landscapes, but also physical anthropology, the study of village society. The dynamics of the abandonment of villages are investigated, alongside the contribution of written sources, with the study of the formation processes of the archaeological strata of the villages.



## **T04S020 - SUBSISTENCE STRATEGIES IN CHANGE: THE INTEGRATION OF ENVIRONMENTAL AND ARCHAEOLOGICAL EVIDENCE ON PREHISTORIC LAND-USE**

**Organizers:** **Wiebke Kirleis** (Institute of Prehistoric and Protohistoric Archaeology/ Graduate School Human Development in Landscapes, Christian-Albrechts-University Kiel, Kiel), **Elena Marinova** (Center for Archaeological Sciences, KU Leuven, Leuven), **Soultana Maria Valamoti** (Dept. of Archaeology, Aristotle University of Thessaloniki, Thessaloniki), **Stefan Dreibrodt** (Institute for Ecosystem Research/ Graduate School Human Development in Landscapes, Christian-Albrechts-University Kiel, Kiel), **Andreas G. Heiss** (Vienna Institute for Archaeological Science, University of Vienna, Vienna)

Prehistoric land-use strategies vary in scale and levels of sustainability. Land-use management can be identified as early as the Palaeolithic/Mesolithic when woodland composition was notably influenced. But, since the onset of the Neolithic, societies are based upon subsistence economies including crop growing and animal husbandry, which gradually lead to considerable impacts on landscapes. Subsistence strategies shift over time, depending on cultural, biotic and abiotic backgrounds. However, the scales of human-environmental impact differ considerably, are non-linear. Furthermore, different

lines of evidence often produce controversial results. From an interdisciplinary perspective, we will approach the interaction of agrarian communities and their environment by answering questions such as: Which organisation and which modes of prehistoric agrarian production can be identified by both the environmental and the archaeological records for different prehistoric periods? Which measures are available to estimate the degree of land-use intensity? To what extent do different modes of subsistence strategies correspond with societal organisation, depend on degrees of social complexity? Our focus is on land-use and subsistence strategies in European and Near Eastern prehistory, in particular: • the Neolithic establishment of agriculture • Neolithic/Chalcolithic agricultural dynamics • Early Bronze Age regressions • Late Bronze Age changes • Iron Age extensive land-use.

## ORAL PRESENTATIONS

### Wetland Strategies: Plant Subsistence at Hekelingen-III

**Welmoed A. Out** (Institute of Prehistoric and Protohistoric Archaeology/Graduate School Human Development in Landscapes - CAU Kiel, Kiel), **Walter Dörfler** (University of Kiel, Kiel)

Hekelingen-III is a Late Neolithic site (2900-2500 cal BC) in Holland, formerly located along a tidal creek and intermittently visited by multiple households during c. 200-300 years. While the subsistence of many societies elsewhere in Europe was primarily based on agriculture, the subsistence of this site of the Vlaardingen group was based on a combination of agricultural practices and hunting, gathering and fishing. The rich archaeobotanical record, now for the first time analysed in full detail, allows addressing questions about human impact on the vegetation, plant exploitation and agricultural practices, while some finds also allow intra-site comparison and analysis of developments through time. The results will be discussed in the light of neighbouring sites and the cultural group's societal organization.

### This Must Be the Place. Perspectives on the Mesolithic-Neolithic Transition in Eastern Middle Sweden

**Tom Carlsson** (Swedish National Heritage Board, Stockholm)

Farming and animal husbandry were introduced in southern Scandinavia approximately 4000-3900 cal BC. During the course of only a few generations the practice of farming spread and became generally accepted. The theoretical models for this process by implicit imply that farming and cattle herding was a much more advantageous economy than the hunting, fishing and gathering of the Mesolithic society. But, why did it take a thousand years before farming was introduced in Scandinavia compared with the rest of northern Europe? And, considering all these proposed economic advantages, why was farming abandoned in Eastern Middle Sweden around 3200-3100 cal BC? My paper is a regional analyse of the Neolithic transition. The research area is the inland of Eastern Middle Sweden. The empirical material comes from large scale excavations and includes numerous analyses of radiocarbon, macrofossils, and osteology and so on. The main intention is to question the view of a farming economy as irresistibly advantageous. On the contrary, the Late Mesolithic broad spectrum economy was well adapted for coping with temporary decline in natural resources and to sustain the population.

### The importance of the Hinterland: Multi-isotope Analysis on Animals from Prealpine Lakeshore Settlements

**Thomas Doppler** (University of Basel, Basel), **Claudia Gerling** (University of Basel, Basel), **Corina Knipper** (Curt-Engelhorn-Centre Archaeometry GmbH, Mannheim), **Volker Heyd** (University of Bristol, Bristol), **Moritz Lehmann** (Curt-Engelhorn-Centre Archaeometry GmbH, Mannheim), **Alistair Pike** (University of Southampton, Southampton), **Jörg Schibler** (University of Basel, Basel)

A project based at the University of Basel focuses on reconstructing Neolithic herding strategies at lakeshore settlements in the lower Lake Zurich region and Arbon Bleiche 3 at Lake Constance using a multi-isotope approach. Lakeshore settlements are among the best investigated archaeological sites in the world due to the exceptional preservation of the finds and the broad range of scientific disciplines that have been applied to study the archaeological material and environment. We use oxygen isotopes as evidence for herding at different altitudes and to link movement detected using spatially resolved strontium data in tooth enamel to the season of the year. Carbon and nitrogen isotope ratios are used to inform us about environmental conditions of the pasture grounds. This is done to gain insight into the potentially changing (cattle) herding strategies between the late 5th and the early 3rd millennium BC as well as to investigate reasons for the apparent increased importance of (red deer) hunting in certain time periods, for example in periods of climatic deterioration. Here, we present our preliminary results revealed by carbon and nitrogen isotope measurements showing changes in the economy and land-use at the lakeshore settlements in the Neolithic and Early Bronze Age.



## On the Identification of Domesticated Cereals in the Aceramic Neolithic of the Near East

**Alexander Weide** (Institut für Naturwissenschaftliche Archäologie University of Tübingen, Tübingen), **Simone Riehl** (Institut für Naturwissenschaftliche Archäologie and Senckenberg Center of Human Evolution and Palaeoecology University of Tübingen, Tübingen), **Mohsen Zeidi** (Institut für ältere Urgeschichte und Quartärökologie & Senckenberg Center of Human Evolution and Palaeoecology, University of Tübingen, Tübingen), **Nicholas J. Conard** (Institut für ältere Urgeschichte und Quartärökologie & Senckenberg Center of Human Evolution and Palaeoecology, University of Tübingen, Tübingen)

The domestication of plants is a major step in the development of agriculture. Therefore, to reconstruct the domestication process is a basic requirement for the understanding of the Early Neolithic in the Near East and how agriculture emerged. Although there is general agreement on the criteria of differentiating wild from domesticated cereals, their application to material from Aceramic Neolithic sites is problematic for reasons of preservation and diversity of early transitional chaff remains. The goal of our current research is to establish a dataset for the distinction of wild and domestic emmer wheat (*Triticum dicoccoides/dicoccum*). General observations as well as experimental charring and measurements on wild and domestic emmer from Israel, Syria and Turkey were conducted to track main features that distinguish the two forms. These data were applied to archaeological specimens from the Aceramic Neolithic site of Chogha Golan (Ilam Province, Iran) which was partly excavated in 2009 and 2010 by a team of the Tübingen Iranian Stone Age Research Project. The site in the foothills of the Central Zagros was occupied from 11.700 to 9.600 cal. B.P. and is important concerning the origins of domesticates and cultivation in that so far under-investigated region.

## Local Herding at the Sites of Borduşani-Popină and Hârşova Tell (Romania, Danube River, 5th millennium cal BC)

**Marie Balasse** (CNRS UMR 7209 «Archéozoologie, archéobotanique: sociétés, pratiques, environnements», Paris), **Carlos Tornero** (CNRS UMR 7209, Paris), **Delphine Frémondeau** (CAS KU Leuven, Leuven), **Roman Hovsepian** (Institute of Archaeology and Ethnography NAS, Yerevan), **Rosalind Gillis** (CNRS UMR 7209, Paris), **Joël Ughetto-Monfrin** (CNRS UMR 7209, Paris), **Dragomir Popovici** (National Museum of Romanian History, Bucharest), **Adrian Bălăşescu** (National Museum of Romanian History, Bucharest)

Gumelnița communities settled by the Danube river subsisted on a diversified economy, focused to a large extent on aquatic resources but depending also heavily on husbandry and agriculture. This study is focused on the neighbouring sites of Borduşani-Popină and Hârşova tell (second half of 5th millennium cal BC). The former was settled on an alluvial bar of the Danube river on the island of Balta Ialomitei, the latter on the right bank of the river. The question was whether domestic herds at Borduşani-Popină were maintained on the island, taking advantage of local topography and vegetation structure, or were herded on the other side of the channels. Stable isotope analysis of animal remains revealed at both sites an unexpectedly high contribution of C4 plants to the diet of cattle and caprines, while no contribution was observed in wild herbivores. This may highlight local occurrence of ruderal C4 plants: *Chenopodium* and *Amaranthus* are attested. They would have been more abundant around the settlements. The high trophic status of domestic pig may be explained by the feeding on aquatic resources, largely exploited by the human communities. These findings suggest a great proximity of domestic stock to the settlements and corroborate the scheme described from archeobotany, also describing a local agriculture.

## Shifting Diversities: Examples for Changes in Crop Use from the Chalcolithic to the Bronze Age in Western and Central Europe

**Hans-Peter Stika** (University of Hohenheim, Stuttgart), **Andreas G. Heiss** (University of Vienna, Vienna)

Environmental archaeology has been efficiently demonstrating that land-use management strategies of prehistoric agrarian societies do often differ considerably between regions and periods, and so do their impacts on the landscapes. However, especially when it comes to supra-regional comparative studies involving modelling, or general questions on the bigger scope (such as on the importance of certain domesticated crops in larger areas, and their temporal shifts), the available data qualities are often unpleasantly low. Nevertheless we want to ask for the possible reasons behind narrower and wider spectra in cultivated crops: is it the varying ecological conditions, the respective agrarian systems, the availability of certain taxa, cultural preferences in crop-processing and crop use, or rather the societal organisation of subsistence economies? Presenting new data from the Chalcolithic sites of Zambujal and Alcalar in Portugal as well as the Bronze Age sites of La Bastida, Tira del Lienzo and San Cayetano in south-eastern Spain, we try to use extant archaeobotanical data in order to detect supra-regional differences and temporal shifts in subsistence strategies, and explore the possible multi-causal variations in the respective applied agrarian strategies.



## **Innovation and Continuity: Subsistence Practices in the Circum-Alpine Area during the Late Bronze/Early Iron Age Transition**

**Barbara Stopp** (IPAS – Integrative Prehistory and Archaeological Science University of Basel, Basel), **Marlu Kühn** (IPAS – Integrative Prehistory and Archaeological Science University of Basel, Basel), **Annekäthi Heitz-Weniger** (IPAS – Integrative Prehistory and Archaeological Science University of Basel, Basel)

The Bronze and Early Iron Ages (Hallstatt period) were characterised by highly fluctuating climatic conditions, changes in the vegetation and types of land use, an expansion of long-distance contacts, the exploitation and colonization of hitherto scarcely settled territories and technological innovations. From the archaeobotanical point of view we focused on the question as to why the people decided to cultivate new plants, changed their farming methods, and intensified their approach to their natural environment. One of the main archaeozoological questions dealt with aspects of animal husbandry: the impact of environmental as well as cultural factors, identifying changes in livestock breeding and explanations thereof, e.g. increase in exploitation of secondary products (milk, work) or influence from outside the region (trade). Our data, which were mainly collected from published literature, show that people were quick to adapt to environmental demands when necessary, but whenever possible stuck to their well-tried traditions.

## **Ancient Crops and New Harvesting Strategies of Bronze Age Communities in (Puglia) South-Eastern Italy: Socio-Economical Adaptation to Late Holocene Seasonal Changes in Central Mediterranean Area?**

**Girolamo Fiorentino** (University of Salento, Lecce), **Milena Primavera** (University of Salento, Department of Cultural Heritage, Lecce), **Cosimo D'Oronzo** (University of Salento, Lecce), **Italo Maria Muntoni** (Soprintendenza Archeologica della Puglia, Taranto), **Francesca Radina** (Soprintendenza Archeologica della Puglia, Taranto)

The study consists of a regional-diachronic overview of Bronze Age archaeobotanical data focused on south-eastern Italy, as reflected by charcoal and seed/fruit analysis performed on 15 archaeological sites widespread along Puglia region. This synthesis, aiming at reconstruction of Human-Plants relation during a period of changes in environment and cultural systems, offers interesting evidence of “contemporary” shifts in both paleoenvironmental and palaeoeconomical records throughout the lapse of time between Mid and Late Bronze Age. While Anthracology points to a phase of changing in vegetation cover, seeds/fruits analysis reveals a shift in subsistence economies. Changes in agro-production are discussed taking into account agronomic features (water and temperature requirements) during the key periods of the growing, according to the current literature referred to the region. Given that the decisions on changing the agriculture production can be, at least, related to: a) environmental conditions or b) socio-economic requirements, an integrate approach should help to understand the role of climate and/or human forces. For this reason we integrate and discuss the major changes in the light of socio-cultural dynamics inferred from archaeological evidences (population growth, social complexity, storage capacity) and high-resoluted paleoclimate proxy available for the central Mediterranean area, in order to understand whether and how Bronze Age communities in Puglia adapted or modified in response to seasonal climatic changes.

## **Archaeobotanical and Stable Isotope Evidence from Tell Tweini: Subsistence Stability in the Syrian Coastal Area from 2600-550 BC**

**Elena Marinova** (CAS-University of Leuven, Leuven), **Simone Riehl** (Institut für Naturwissenschaftliche Archäologie, Universität Tübingen und Senckenberg Zentrum für menschliche Evolution und Paläoökologie-HEP, Tübingen), **Ben Fuller** (CAS-University of Leuven, Leuven - Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology, Leipzig), **Joachim Bretschneider** (Department of Near Eastern Studies, University of Leuven, Leuven)

The study focuses on the evidence of continuity and stability of the ancient subsistence in the period between Middle Bronze Age and Iron Age (2600-550 BC) in the Syrian coastal area. The main sources of evidence are the plant macrofossil assemblages, and stable isotope analyses of charred caryopses of cultivated cereals extracted from the cultural layers of Tell Tweini. Together with the remains of cultivated plants also a variety of wild growing plants, originating from wet environments, open habitats etc. was recorded. The stable carbon isotope analyses of cereal crops from the same assemblages show relatively little general variation of  $\delta^{13}C$  throughout time. There is however variation of  $\delta^{13}C$  within periods considering different crop species. Particularly during the Late Bronze Age  $^{13}C$  is strongly depleted in free-threshing wheat compared to barley and emmer. This could indicate different crop production technology, such as irrigation of free-threshing wheat or even import of free-threshing wheat from other regions. The plant subsistence and its relation to environmental change of the studied area is also considered in regional context using the evidence from the archaeobotanical database of Eastern Mediterranean and Near Eastern sites (Riehl and Kümmel 2005).

## **Land Use and Resource Exploitation in 3rd-2nd millennium BC Northeastern Syria**

**Katleen Deckers** (University of Tübingen, Institute for Archaeological Sciences, Tübingen)

In Deckers and Riehl (2008) we used CORONA satellite images to map archaeological sites in the Upper Khabur Basin of northeastern Syria. Based on the mapped tells and their lower town surfaces, we were able to calculate Early Bronze Age

agricultural sustaining areas on the basis of realistic population density values, food consumption patterns and yields within this climatic zone. These calculations modeled ca. 40% of the land was under cultivation. In the above mentioned study we did not model the land for meat consumption, which will be included in this presentation. FAO data from the 1970 indicate animal-derived products made up only ca. 10% of the food consumption in 1970s Syria. If we assume people in the 3rd millennium BC had similar food consumption patterns as Syrian people had in 1970, with 65 kcal of mammal meat/day, there seems to have been considerable land pressure at that time. Several independent lines of evidence underline this suggested land pressure; such as the use of dung as fuel, the shrubby appearance of the deciduous oak trees and the find of charcoal fragments that indicate impact on the wood structure from herbivore browsing. Deckers, K. and Riehl, S. (2008). Tells of the Upper Khabur: their hydrological and agrarian contexts. *Paléorient* 34.2, 173-189.

### **Crop Husbandry and Land Use in Neolithic and Bronze Age Northern Greece: Some Preliminary Insights from Archaeobotany**

**Soultana Maria Valamoti** (Dept. of Archaeology, Aristotle University of Thessaloniki, Thessaloniki)

The large body of archaeobotanical data retrieved from various Neolithic and Bronze Age sites in northern Greece forms the basis for an exploration of land use practices in the region, Starting from the appearance of the first farming communities in the 7th millennium B.C. and ending in the 2nd millennium B.C. The neolithic sites considered in detail here are in their majority fully studied and include extended/flat settlements like Apsalos-Grammi (Middle Neolithic), Kremasti Koiladas (Late Neolithic) and Makriyalos (Late Neolithic) as well as tell settlements like Makri (Late Neolithic), Mandalo (Late Neolithic), Arkadikos (Late Neolithic) and Dikili Tash (Late Neolithic). The assemblages from these sites, corroborated by pollen cores and other environmental proxies from the area, are used to attempt an examination of the scale of agricultural production and land management in relation to both plant and animal husbandry. The extent of interference with woodland vegetation, nature of land-use practices including grazing and possible seasonal movement in search of pasture form the main topics of this discussion. Archaeobotanical data from Early, Middle and Late Bronze Age sites in the region (e.g. Vasilara Rachi, Mandalo, Archondiko, Agios Athanasios, Kastanas, Toumba Thessalonikis, Mesimeriani, Agios Mamas and Skala Sotiros, 3<sup>rd</sup>-2<sup>nd</sup> millennia B.C.) are also considered, providing the basis for a discussion of possible changes in land use, economic organisation and goals of production, during the course of the Bronze Age.

### **Subsistence Economy and Land Use Strategies in the Burdur Province (SW Anatolia) from Prehistory to the Byzantine Period**

**Bea De Cupere** (RBINS, Brussels), **Delphine Frémondeau** (CAS - University of Leuven, Leuven), **Hanne De Brue** (Division of Geography - University of Leuven, Leuven), **Eva Kaptijn** (RBINS, Brussels), **Ralf Vandam** (Sagalassos Archaeological Research Project-University of Leuven, Leuven), **Jeroen Poblome** (Sagalassos Archaeological Research Project-University of Leuven, Leuven), **Marc Waelkens** (Sagalassos Archaeological Research Project-University of Leuven, Leuven), **Gert Verstraeten** (Division of Geography - University of Leuven, Leuven), **Wim Van Neer** (RBINS, Brussels), **Elena Marinova** (CAS - University of Leuven, Leuven)

Bioarchaeological and geoarchaeological research provides a valuable contribution to the exploration of the ancient subsistence economy in relation to the land use strategies. This presentation is based on the results from archaeozoological, archaeobotanical and stable isotope analyses from Early Bronze Age Hacilar, the Classical/Hellenistic site of Düzen Tepe and the antique site of Sagalassos. Those will be supplemented by already published data from several prehistoric settlements from the Chalcolithic and Early Bronze Age in the Burdur plain. While almost no archaeological and bioarchaeological evidence is available until now for the Middle and Late Bronze Age, and the Early Iron Age, palynological data from the intra-mountain valleys clearly show increasing human occupation from the seventh century BC onwards. Results from bioarchaeological and stable isotope analyses show changing agricultural and husbandry practices through time, ranging between rural self-sustaining economies to specialised husbandry practices and an intensive agricultural exploitation of the landscape. The data will be integrated with the available information on settlement dynamics in the area and the first results of land use modelling, in order to describe the subsistence economy and land use strategies in the region from prehistory to the Byzantine period. Addresses the value of materials and of the personal ornaments they were used to make in this island context.

### **Reconstructing Land-Use and Sustainability on Samothrace: A Socio-Ecological Approach to an Archaeological Case Study**

**Sheba Schilk** (Alpen-Adria University of Klagenfurt, Institute of Social Ecology, Klagenfurt)

This contribution will focus on the planned strategies used in our project, "Socioecological transition, sustainability and collapse of island communities", to reconstruct land-use on the island of Samothrace. Agriculture feeds the population, but demands substantial labour and causes environmental problems (sustainability issues). A reconstruction of the agricultural system now and in the past can reveal possible system imbalances that affect the vulnerability or robustness of the system

under study. By the use of a model of the island's socioecological system, we will combine archaeological data with socio-ecological methods in order to see changes in land-use, overgrazing and other possible impacts of the society to nature. On Samothrace, a number of historical cases of collapse, in the sense of complexity and rapid population decline, have occurred. At present there is a fragile situation of slow decline of population and ecological challenges that might possibly be brought to a tipping point by impacts of Greek economic and governance crisis and climate change. The islands community has decided to make an effort at turning the whole island into a Biosphere Reserve by UNESCO standards. We aim to support to this process gaining information with a combination of archaeological and socioecological methods.

### **Long-Term Economic Changes and the Silting of the Plain of Sybaris (Italy, VI mill. BCE-Present)**

**Alessandro Vanzetti** (Sapienza University of Rome, Rome)

The Plain of Sybaris, in Southern Italy, is a subsiding and naturally marshy landscape whose surrounding plateaux, hills and heights have been intensively settled since the Early Neolithic (VI millennium BCE). The Greek colonization and the foundation of Sybaris (720 BCE) brought to a change in economic orientation, with the floodplain becoming the core agrarian area, even if data are still scanty because of overflowing. Since late Roman times, the hills became again the focus economic area, and the plain reverted to marshlands. The changes in economic strategies can be matched with 2 existing pollen diagrams from high altitude basins, archaeological botanic and faunal data from excavations and a wide series of geological cores from the subsiding plain, giving indications about the changes in the intense silting process. It is possible to relate silting rate changes to different economic strategies, including slash-and-burn, extensive ploughing, mediterranean policulture and water management. It can be argued that a general reduction of silting took place since the Middle Bronze Age protohistoric stabilization of settlement (1600 BCE), connected with Mediterranean policulture, with the least-impact phase being acquired during the Greek phase (720-200 BCE), when water management regulated the exploitation of the agrarian plain.

### **Tracking the Movement of Millet in Prehistoric Croatia Using Stable Carbon and Nitrogen Isotopes**

**Emily Zavodny** (The Pennsylvania State University, State College), **Brendan J. Culleton** (The Pennsylvania State University, State College), **Sarah B. McClure** (The Pennsylvania State University, State College), **Douglas J. Kennett** (The Pennsylvania State University, State College), **Jacqueline Balen** (Archaeological Museum of Zagreb, Zagreb), **Emil Podrug** (Šibenik City Museum, Šibenik)

In this paper, we investigate the appearance and adoption of millet in prehistoric central and northern Croatia. Results from stable carbon and nitrogen isotope analysis of human bone suggest that Neolithic populations in Dalmatia did not consume millet as a major part of their diet, despite macrobotanical evidence for the C4 plant in archaeological contexts. However, by the Late Bronze and Iron Ages, northern populations sampled show a highly enriched carbon signature. We argue that this observable shift in carbon over time is attributable to the incorporation of millet into human subsistence regimes. Using new radiocarbon dates, we attempt to more precisely define when millet was adopted in different areas, and explore the implications of millet cultivation for local populations and their environments.

### **We Plough the Fields and Scatter: South Cadbury Environs - Crops across the Landscape**

**Danielle de Carle** (University of Sheffield, Sheffield)

Subsistence practices change cyclically and more gradually through time. On an annual scale, seasonal tasks and changes in the landscape have a profound impact on the way people organise their daily lives and in turn the way that people interact with their environment. These rhythms contrast with long-term change informing and formed by wider societal developments. This presentation introduces changing crop cultivation practices through ecological consideration of the intensity of cultivation, location and seasonality. It brings together charred archaeobotanical (crop, weed and wild herbaceous plants) and anthracological results from a range of multi-period sites surrounding what would become the developed hillfort of South Cadbury, Somerset, UK. From ephemeral Neolithic beginnings, it looks at Bronze Age development in a well-connected society, into the Iron Age agricultural expansion that allowed or perhaps forced the construction of the defended central place of South Cadbury. A landscape where the divisions and shifting alignments seen through the sub-soil archaeological features point towards a largely pastoral subsistence economy, at the edge of contrasting regions: the far western edge of Wessex and overlooking the wet, lowland Somerset Levels and Moors.

## **POSTERS**

### **The Evolution of Animal Palaeoeconomy in Neolithic from Teleorman Valley (Romania)**

**Adrian Bălăşescu** (National Museum of Romanian History, Bucharest)

During the last decades, archaeozoological studies conducted along Teleorman valley have recorded the animal paleoeconomy evolution over 2500 years (6200-3800 BC – between Pre-criş and Gumelniţa cultures). The fauna studied here exceeds

over 41,000 bones, among which the most numerous are those from mammals (93%). Therefore along the chrono-cultural sequence studied, remains of domestic mammals were predominant (more than 70%). But by the end of the Eneolithic period this situation changes dramatically, in the sense that the wild mammals exceed 65% of studied assemblages. The causes that led to this situation are difficult to identify. They can range from climatic and environmental causes, to the social, economical or cultural ones. Regarding animal husbandry activity, it was observed that the Early Neolithic is characterized by an extremely high percentage of caprines (67%). In the subsequent Dudești and Vădastra cultures, they fall to 13-15% and by the end Gumelnita culture they represent only 4% of domestic fauna. The evolution of cattle is generally opposite to that of caprines. The only domestic species showing a constant percentage increase over the entire studied period is the pig. This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS – UEFISCDI, project number PN-II-ID-PCE-2011-3-1015.

### **Hydroclimatic Deterioration and Its Consequences for Mediterranean Bronze Age Societies around 2.2 ka BC**

**Christian Schwab** (Institute of Prehistoric and Protohistoric Archaeology/Graduate School Human Development in Landscapes - CAU Kiel, Kiel), **Mara Weinelt** (Institute of Prehistoric and Protohistoric Archaeology/Graduate School Human Development in Landscapes - CAU Kiel, Kiel)

Agricultural subsistence of present and ancient Mediterranean societies is based on dry-land farming, strongly depending on annual winter-rainfalls. In a recently started project we examine the magnitude, extend, and spatiotemporal context of a hydroclimatic setback in the Mediterranean region around 2.2 ka BC, and assess its linkage to contemporaneous socio-cultural changes. Here we present the project outline and first results of a two-fold approach including i) a synoptic study of environmental and socio-cultural changes based on existing datasets ii) detailed case studies from selected archaeological and palaeoclimatological key sites. We aim to establish continuous semi-quantitative archaeological proxies related to social resilience/vulnerability, including changes of subsistence strategies, like adaption of water-management policies, which are crucial for social development in the Mediterranean region. Palaeohydroclimatic records based on hydrogen isotopes of plant waxes, so far rarely applied in the Mediterranean Sea, will be established on high-resolution marine sediment cores covering an E-W transect from the Levantine to Alboran Basins. This study will yield insights into climatic conditions/processes around 2.2 ka BC, and will allow for a comparison of culturally distant Bronze Age societies during an environmentally shaped crises of supposedly global scale.

### **Neolithic Cultivation Methods in Northern Germany and Southern Scandinavia**

**Wiebke Kirleis** (Institute of Prehistoric and Protohistoric Archaeology/Graduate School Human Development in Landscapes - CAU Kiel, Kiel), **Elske Fischer** (Regierungspräsidium Stuttgart, Landesamt für Denkmalpflege, Labor für Archäobotanik, Gaienhofen-Hemmenhofen, Hemmenhofen), **Stefanie Klooß** (Institute of Prehistoric and Protohistoric Archaeology/Graduate School Human Development in Landscapes - CAU Kiel, Kiel)

Changes in Neolithic cultivation methods in the North European Plain and southern Scandinavia are observed through archaeobotanical investigations. Spatial and diachronic differences occur with the onset of agriculture around 4100 cal. B.C. Agricultural transformations culminate in the period 3750–3500 cal. B.C. alongside with the technological innovation of the ard. An anew change in subsistence strategies occurs in the Younger Neolithic around 2800 cal. B.C. with the different social and ritual traditions of the Single Grave groups. Based on a data set of more than 50 archaeobotanically investigated Neolithic sites, diachronic transitions are analysed with regard to changes in the cereal assemblages over time, the relation of wild to domestic used plants and to the interpretation of the weed spectra. We assume that different cultivation regimes were applied, starting with cultivation on small nutrient rich plots, followed by an expansion of arable fields. Changes in subsistence strategies will be discussed facing societal, environmental and climatic transitions.



### **T04S021 - CAVES AS RITUAL SPACES IN LATER PREHISTORIC EUROPE**

**Organizers:** **Lindsey Büster** (University of Bradford, Bradford), **Eugène Warmenbol** (Université libre de Bruxelles, Brussels), **Dimitrij Mlekuž** (University of Ljubljana/Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana)

Recent research has led to a resurgence of academic interest in caves, in particular the place of these enigmatic sites in the worldviews of later prehistoric communities (broadly from the Middle Bronze Age to the Roman Iron Age). Many caves were used for rituals involving the preparation and display of human remains and the deposition of prestigious artefacts. These were clearly performative acts and the recurrent use of caves as the arenas for such performances tells us much about their role in the cosmology of later prehistoric communities. In this session we aim to assess how far the observations at individual cave sites across Europe represent a broader European phenomenon inherently associated with materiality of these enigmatic natural places, and the ways in which their use and perception developed over time. The session

aims to bring together recent studies on the ritual and religious use of caves in later prehistory, and papers are particularly welcomed on the use of emerging technologies and analytical techniques (acoustics modelling, 3D laser scanning, isotopic work etc) to move beyond generalised understandings of these practices, towards nuanced understandings of the roles which these sites played, and the ways in which they were perceived.

## ORAL PRESENTATIONS

### Do Caves Have Agency?

**Rick Peterson** (University of Central Lancashire, Preston)

Recent studies of later prehistoric cave use have stressed the affective qualities of these natural spaces. Certain properties of caves, darkness, constriction and their active geomorphology for example, can lead to caves be characterised as active agents, natural places with profound powers. However, is it really plausible to interpret caves, inanimate geological formations, as active agents? This paper will review arguments on social, environmental and material agency. This will include Structuration theory, with its emphasis on human intentionality as a key aspect of agency, Ingold's 'Dwelling perspective', which allows the possibility of non-human agents, and Actor Network Theory, where artefacts, people and environment are all allocated equal agency as actants within a network. Ethnographic examples of cave burial practice will be compared with later prehistoric cave use in Britain. Was the ritual use of caves in the past connected to a belief that the cave itself had power and agency?

### The Ritual Use of Caves in Middle Bronze Age Central Italy

**Letizia Silvestri** (Durham University, Durham), **Katia Francesca Achino** (Universitat Autònoma de Barcelona, Barcelona), **Mario Federico Rolfo** (Università degli Studi di Roma 'Tor Vergata', Rome), **Micaela Angle** (Soprintendenza per i Beni Archeologici del Lazio, Lazio)

The ritual use of caves is a renowned cultural feature of Middle Bronze Age central Italy. From the earliest research by Radmilli (1950s) to the systematic investigations by Grifoni Cremonesi (1960s-1990s), the number of MBA archaeological caves of this region has been constantly increasing, getting now close to a hundred. These sites are commonly interpreted as ritual and burial (both primary and secondary). Still, there are many unsolved questions relating to the interpretation of such uses. To what extent (and how) can we distinguish between ritual and domestic caves? How are these sites related to open settlements? Are there any differences amongst the many caves generally considered as ritual? Do these caves present cultural similarities and recurrent features? Is it possible to relate such constant features to a cultural homogeneity? Why does the occupation of caves suddenly stop at the end of the BA? This paper will present a critical synthesis of the literature about the main MBA caves of central Italy, and a crucial comparison with new case-studies from the Southern Lazio micro-region. Through this comparative analysis, we aim to elaborate trustworthy answers to some of the aforementioned questions, and to propose new methods to solve the remaining ones.

### Ritual Caves in Bronze Age Italy

**Robin Skeates** (Durham University, Durham)

The ritual use of caves is an important, if under-acknowledged, feature of Bronze Age Italy. Although a few caves continued to be intermittently occupied as long-term dwelling places by residential communities and as convenient shelters by mobile herders and hunters at this time, a general trend (initiated in the preceding Final Neolithic and Copper Age) towards the sacralization of underground caves can be clearly identified. During the Bronze Age, ritual performances in a larger number and wider range of caves led to the deposition of even richer mortuary and votive deposits at selected sites, and, in some cases, to their architectural modification. This paper considers this trend in the context of contemporary re-orderings of the landscape – notably the wider settling of formerly marginal parts of the Italian landscape, the widespread establishment of defended villages, and the elaboration of above-ground monuments. Particular attention is paid to groups of caves in central Sardinia (Seulo) and central Italy (Frosinone province), which are the subject of on-going research projects.

### Water Sacredness and Underground Protohistoric Cults within the Grotte di Pertosa (Campania, Italy)

**Felice LaroCCA** (Università degli studi di Bari 'Aldo Moro'/Centro Regionale di Speleologia 'Enzo dei Medici', Bari), **Maria de Falco** (Università degli studi di Napoli 'L'Orientale'/Centro Regionale di Speleologia 'Enzo dei Medici', Naples)

Grotte di Pertosa are located in Campania (southern Italy) and represent an important karstic resurgence, three kilometres in length, of a copious underground stream. They have been archaeologically explored since the XIX century, and frequented by men – with some time gaps – from Paleolithic to Medieval period. Their importance is due to the broad pile dwellings (palafitte) set at the cave entrance, recently radiocarbon dated to the middle Bronze Age. Within the cavity



rituals are attested dating back to the Bronze and Iron Ages that involved the offering of precious artifacts, such weapons and ornaments, to the stream waters. At the same time, some underground areas have been discovered with unusual concentrations of ware artifacts (i.e. small miniature vessels) set in rocky niches. This fact highlights the cavity sacredness, almost certainly related to the unusual water resurgence from the underground depths. This sacredness survived up to the Greek-roman and Medieval period, when the cave was devoted to St. Michael the Archangel. This paper reports the results of the most recent archaeological investigations within the cave (2009-2013) and offers an overview of the record linked to possible underground cults.

### **The Ritual Use of the Caves in Southern Italy**

**Ilaria Tirloni** (Université de Rennes 2-Haute Bretagne, Rennes)

This paper aims to investigate the use of the caves for cult activities, analyzing the Southern Italy contexts between Final Bronze Age and Early Iron Age. The research has focused on the items which could identify the natural cavities as cultural and/or ritual places: their position in the mountains or beneath the sea, the relationship with the water element, both spring and salt, the presence of ritual markers, the cultural continuity with the Roman and Middle Age, and sometimes also till now. Particular attention will be paid to the cult practices of the votive deposits: all the archaeological attestations of depositional ways of placing the pottery or the bronzes during the rite are studied with the helpful presence of anthropology and literary sources.

### **The Bronze Age Decorated Cave of «Les Fraux» Unusual Status: Ritual Uses of an Atypical French Heritage Site**

**Laurent Carozza** (CNRS UMR 5602 Toulouse, Toulouse), **Albane Burens** (CNRS UMR 5602 Toulouse, Toulouse), **Raphaëlle Bourrillon** (UMR 5608 Toulouse, Toulouse), **Stephane Petrognani** (UMR 7041 Nanterre, Nanterre)

The Bronze Age decorated cave of 'Les Fraux' unusual status: ritual uses of an atypical French heritage site. The decorated cave of 'Les Fraux', located at Saint-Martin-de-Fressengeas (Dordogne, France), was discovered in 1989 and registered in the French Historical Monuments in 1995. The site has been occupied during nearly 3 centuries, from the middle to the final Bronze Age (1450-1150 BC). The cave forms the only protohistorical site in Europe wherein are gathered testimonies of domestic, symbolic, ritual and artistic activities. Aside from domestic activities, the site was used for the deposition of nearly 30 ceramic and metal deposits, most often found in front of parietal Bronze Age representation (schematics and geometrics lines drawn in the clay covering the walls). Unlike the others in France, it did not yield any human remains. The recent research conducted on the site by an interdisciplinary team of archaeologists, surveyors, environmentalists and archaeometrists. This team attempt to understand the unusual role of this cave for later prehistoric communities while using emerging technologies and analytical techniques (3D laser scanning, modelling approaches, magnetic field mapping, paleoenvironmental reconstruction, simulation of the cave thermal operation, organic content of ceramics, thermal characterization of ancient earth...).

### **Caves in a Late Prehistoric Ritual Landscape around Škocjan (Slovenia)**

**Dimitrij Mlekuž** (University of Ljubljana/Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana)

Škocjan is a striking place where Reka River disappears underground under a rocky wall. The whole landscape around it is mere surface, perforated with Karstic features such as sink holes, vertical shafts and cave entrances, making the presence of an underground world visible and palpable. Those "natural places" have been visited intermittently since Late Palaeolithic. However, those were inaccessible marginal locations, that could be reached only by those who knew how to find them. Caves were not altered by activities that took place there; depositional practices left no discernible traces; events might have been remembered, but this was an active process conducted between events. Meaning of acts and places was fluid and difficult to control, prone to selective forgetting and remembering. In Late Bronze Age a complex ritual landscape emerges around Škocjan, landscape that was structured around caves as entrances to the world below. The whole landscape was turned into monument, fixed, stabilised and made durable. New configuration of landscape prescribed ways of movement and access to the places. Durable structures were erected to fix the meaning of depositional practices and places themselves and to reinforce established social order.

### **The Watery Way to the World of the Dead: The Cave of Han-Sur-Lesse (Belgium) during the Bronze and the Iron Age**

**Eugène Warmenbol** (Université libre de Bruxelles, Brussels)

The spectacular discoveries from the cave of Han-sur-Lesse, including thousands of artefacts from the bottom of the river Lesse that winds through it, were probably deposited there in the context of Death rites. Those who visited the cave in the Bronze and the Iron Age, and left behind offerings of all kinds, from exotic glass and gold to domestic animals and hunted



humans, probably saw the place as a Gateway to the Underworld. Europe offers few parallels, but Greek and Hittite archaeology or literature help us understanding what was going on here.

### **Violence and Veneration at the Sculptor's Cave, Covesea, NE Scotland**

**Lindsey Büster** (University of Bradford, Bradford), **Ian Armit** (University of Bradford, Bradford)

The Sculptor's Cave, which derives its name from the Pictish symbols carved on its walls, yielded one of the most significant assemblages of Late Bronze Age metalwork in Scotland, together with coins and other artefacts from the Roman Iron Age. Although the artefactual material is exceptionally significant, perhaps the real importance of the cave derives from the corpus of human remains. These have revealed that the cave was no ordinary domestic site, but that it witnessed at least two distinct and unusual mortuary rites, centred on the apparent ritual killing and disposal of individuals: the display of predominantly juvenile (and possibly adorned) skulls in the Late Bronze Age, and the decapitation of individuals in the Roman Iron Age. The association of human remains with depositions of metalwork, including coins, finds parallel internationally at sites like the Trou de Han and La Galerie des Petites Fontaines in the Belgian Ardennes, and other north-west European cave systems. New analysis of old excavations is allowing for the use of modern technological and analytical techniques (including laser-scanning and acoustic modelling) to reveal more, not only the about individuals involved but about the arena in which these highly ritualised activities took place.

### **Between a Light and Dark Place: Excavations at High Pasture Cave, Skye**

**Steven Birch** (University of Aberdeen/West Coast Archaeological Services, Aberdeen), **Jo McKenzie** (University of Bradford, Bradford), **Martin Wildgoose** (Archaeological and Ancient Landscape Survey Skye)

Excavations at High Pasture Cave on the west coast of Scotland have produced a wide range of evidence to suggest that this site formed an important element of the wider prehistoric landscape, and a focus for Bronze and Iron Age communities for at least 800 years. Throughout this timeframe the natural cave and its immediate surroundings were modified and monumentalised, possibly creating a powerful cultural threshold between living and underworld. Feasting and craft activities, including metalworking, played an important role at the site and a wide range of objects and their manufacturing waste, mostly relating to normal domestic activities, were deposited. Unusual finds from the site include a charred wooden bridge from a musical instrument – the earliest from Western Europe – and an assemblage of socketed iron tools. Human remains were also recovered including inhumations, individual bones and teeth and fragmentary charred remains, some of which were deposited with the remains of neonatal and perinatal animals. Understanding the function of this site is a daunting task, not least because we are attempting to interpret practices which defy obvious analogy. Whatever the case, it seems certain that dramatic sites such as High Pasture Cave were venues for ceremonies embedded within everyday life.

### **Early Iron Age Cave Burials in Norway**

**Knut Andreas Bergsvik** (AHKR, University of Bergen, Bergen)

Caves and rockshelters were frequently used during the early Iron Age in Norway. In some of these sites there are remains of funerary rituals. Although not very large, the data is varied in terms of the composition, context and topographical location of the sites. Occasionally, complete skeletons have been found; however, disarticulated human bones are most common. In some of the caves there are traces of both habitation and funerals, but there are also sites that were only used for funerary purposes. The locations of the sites vary; some are easy to access and situated close to contemporary agricultural settlements. Others are difficult to access and lies far from settlements as well as routes of communication. Finally, some funerals have taken place in deep sea caves, others in rockshelters. The purpose of the paper is to present the data and discuss it in the context of the general Iron Age funerary rituals in Norway.

### **The La Tène Ritual Occupation of Perrats Cave in Agris, Charente, France**

**Bruno Boulestin** (CNRS, Paris), **José Gomez de Soto** (CNRS, Paris)

The Perrats cave (Agris, Charente, France) was occupied from the Mesolithic to the Middle Ages. During the Late Iron Age, the cave seems to have been completely isolated from any environment and the conditions under which a luxurious 4th century BC helmet and other artefacts were buried suggest that the occupation can be interpreted as a religious one. During La Tène B the site entrance was terraced and a ditch excavated (sometime in the first half of the 4th century BC); this was condemned around 250 BC. During La Tène C2 and D1 the sanctuary installations are found only inside the cave. In the entrance area a platform was created and a cob wall was erected from one cave wall to the other, with a door in the middle of it. A pit seemingly dating from the La Tène period produced two steles. These transformations seem to have accompanied a shift in the social use of the cave: the deposit of the helmet and weapons testifies to a rather aristocratic environment until around 250 BC; during La Tène C and D, large deposits of selected potteries would indicate a more popular orientation.

## **Riddles in the Dark? The Significance of Cave-Use during the 1st Millennium BC and AD across the British Isles**

**Sam Wilford** (Durham University, Durham)

The study of caves and rockshelters formed a key component of early research into the Iron Age and Roman periods in Britain. Work by the likes of Balch in the Mendip Hills and J.W Jackson in Lancashire, established their significance during the Iron Age and Romano-British period. More recent assessment has tended to be a by-product of multi period studies or focused on individual caves. Despite this resurgence, caves remain under-examined in studies of Late Prehistoric landscapes, often regarded as liminal and marginal. Subterranean places, however, are highly emotive and complex, with varied morphologies and deposits that necessitate integration into understanding landscapes as a whole. As part of a broader analysis of cave use across the British Isles, this paper aims to contextualise the Iron Age within the *longue durée* of subterranean exploitation, from the Bronze Age to the early Medieval periods. Focusing on two regional case studies, South-West Scotland and the Yorkshire Dales, an integrated approach is taken, combining viewsheds, cost surface and orientation analysis alongside an understanding of contemporary settlement patterns. This assesses the changing relationship of cave-use, within the wider experience of the 'underground', demonstrated by souterrains, wells and storage pits.

## **How a Community-Based Digital Heritage Project May Help Us Imagine the Circumstances of Symbolic Pictish Carvings in the Wemyss Caves, Scotland**

**Joanna Hambly** (The SCAPE Trust, St. Andrews University, St. Andrews), **Tom Dawson** (The SCAPE Trust, St Andrews University, St. Andrews), **Gavin MacGregor** (Northlight Heritage, Glasgow)

The Wemyss Caves contain over 100 recorded Pictish (late Iron Age) carvings of abstract symbols and animal representations. Fragmentary archaeological deposits show continuity of activity from the 8th century BC, but despite a century of research, the significance of the carvings remains elusive. Continuity of ritual use of the caves is evidenced by the graffiti and passed-down memories of local people, who recall the New Year tradition of drinking purifying well-water by lamplight in a pitch-black chamber of the Well Cave. The memories and insights from non-archaeologists present new angles to thinking about ritual use of the caves. A collaboration between archaeologists and the local community in 2013 saw image-based and ranged-based data capture of Jonathan's Cave and its carvings, alongside the recording of local memories and stories. The data has been used to create a virtual Pictish Jonathan's Cave, together with online analytical tools for examining the carvings within their cave context. By creating a resource and a space for contributions from outside the archaeological and academic community, we open up the potential for fresh thinking about the circumstances in which the symbolic carvings were inscribed within the caves by later prehistoric peoples in Scotland.



## **T04S022 - BIOARCHAEOLOGY OF FERTILITY: A NEW APPROACH IN THE UNDERSTANDING OF POPULATION GROWTH DURING PREHISTORY**

**Organizers: Sofija Stefanović** (Laboratory for Bioarchaeology, Department of Archaeology, University of Belgrade, Belgrade)

During the transition to the Neolithic, prehistoric populations experienced major changes in their way of life along with the first significant increase in birth rate. So far, a very few studies have investigated fertility through holistic approach, looking for the causes of this demographic transition from a bioarchaeological perspective. The aim of the session Bioarchaeology of fertility is to discuss new approaches in understanding prehistoric fertility through the integration of archaeological, anthropological, clinical and paleodemographic methods. Questions of this session will include: can birthing process, evidence of pregnancy and neonatal care be detected from archaeological record and how; what are the effects of prehistoric climatic conditions on birth rates; how did prehistoric behavioural characteristics (mobility, subsistence strategies) impact human fertility; what is influence of aquatic resources to human fertility? Papers are invited to these topics, from theoretical to case studies papers. Also, this session will aim at defining a new understanding of complexity of human birth and possible framework for further studies in prehistoric fertility.

## **POSTERS**

### **Teeth as Evidence of Fertility? A Case Study from Neolithic Anatolia**

**Brenna R. Hassett** (Natural History Museum, London)

The majority of bioarchaeological approaches to understanding fertility in the past rely on the demographics of the dead, which may not provide a satisfactory model of the living population. The evidence of diet and growth that is locked, unchanging, in dental enamel allows access to life history beyond the perimortem evidence available from the skeleton. Because teeth never remodel, and grow to a very regular schedule, it is possible to use the growth structures of the teeth

to build a model of health-disrupting events during the period the teeth were forming; from prior to birth until adolescence. A unique method of mapping the surface topography of teeth has been applied to the central Anatolian Neolithic transition site of Aşıklı Höyük, Turkey. By creating a near-weekly record of childhood health, it is possible to uncover patterns of growth disruption which might be related to childhood mortality or potentially fertility indicators such as weaning age or the birth of siblings. Over the 1,000 year occupation of Aşıklı Höyük, during the transition from hunting and gathering to settled agricultural lifestyles, it is possible to trace shifts in childhood growth disruptions that may be evidence of changing fertility patterns.

### **Possible Pregnancies Revealed from Teeth: “Crisis Annuli” in Tooth Cementum of Females in the Danube Gorges**

**Marija Radović** (University of Belgrade, Laboratory for Bioarchaeology, Department of Archaeology, Faculty of Philosophy, Belgrade)

Study of human fertility in prehistory is important for the proper understanding of its evolution. Until now there was no direct evidence from prehistoric human skeletons showing pregnancies and duration of reproductive period in females. This poster presents new evidence in females of the Danube Gorges anthropological collection (9500 - 5500 BC) obtained from their teeth by applying tooth cementum annulation method. Distinct annuli in acellular extrinsic fiber cementum (AEFC), a mineralized tissue surrounding the cervical third of each human tooth, are used to estimate age of an individual. Moreover, forensic studies showed that life-history information may be recorded in cementum patterns. As a bony tissue which undergoes strict appositional growth, AEFC thus serves as archive for events like pregnancies, skeletal trauma, and renal disease observed as hypo mineralized, “crisis” annuli. The year of occurrence of these events can be precisely datable by AEFC annuli. “Crisis annuli” in teeth of three females from the Danube Gorges are presented in this poster. Considering that these individuals are dated from the Mesolithic to the Neolithic, the information we obtained about the number of possible pregnancies and of accurate timing of their reproductive period is of special importance.

### **Fish Consumption and Fertility: The Evidence from Mesolithic-Neolithic Danube Gorges**

**Ivana Živaljević** (University of Belgrade, Laboratory for Bioarchaeology, Department of Archaeology, Faculty of Philosophy, Belgrade)

Sturgeon fishes are considered to be one of the greatest wildlife commodities of today, not only because of their valuable caviar, but also for their meat of excellent quality and taste. Sturgeon meat is an excellent source of essential fatty acids and certain elements (such as zinc), which are greatly beneficial for human health and fertility. An adequate intake of omega-3 (n-3) fatty acids in pregnancy can increase gestation length and improve infant cognitive and visual performance, and reduce the incidence of preterm births and low birth weight. On the other hand, zinc has shown to increase testosterone levels in men and improve sperm quality. In the Mesolithic-Neolithic Danube Gorges, the significant role of sturgeon fishing is manifested in both archaeozoological and isotopic data. Size estimations of specimens from the sites of Lepenski Vir and Padina suggest that its inhabitants hunted very large adult individuals, which often exceeded 2m in total length and 100kg in weight. The poster explores the role of sturgeon meat and (and possibly caviar) in dietary regimes of the prehistoric communities in the Danube Gorges, and the possible effects of its consumption on human health and fertility in this particular context.

### **Effects of Subadult Stress on Mortality in Adult Populations in Rural and Urban Living Environments**

**Marijana Jukić** (School of Medicine Josip Juraj Strossmayer University of Osijek, Osijek), **Mario Šlaus** (Croatian Academy of Arts and Science Anthropological Center, Zagreb)

It is a well-known fact that subadult stress negatively affects mortality in adult populations. The aim of this work is to determine how the life environment ( rural vs. urban ) and consequently different living conditions are affecting the frequency of subadult stress (as determined by osteological and dental indicators of non-specific stress) in males and females, and the effect it had on the mortality of the analyzed populations. We examined skeletal remains recovered from the Late Antique site of Certissia (modern Strbinci) as a sample from a rural area, and Mursa (modern Osijek ) as a sample of an urban environment. For each skeletal sample, the sex, age at death and signs of subadult stress - Cribra orbitalia and linear enamel hypoplasia - were noted. Age at death and sex were determined by anthropological methods described in Buikstra and Ubelaker (1994). The presence of Cribra orbitalia and linear enamel hypoplasia were noted visually, as described by Ortner (2003). Preliminary results show that there is a difference in adult mortality between rural and urban populations in general, but no significant difference between sexes in the sample populations.

## Visual Representations of Fertility and the Neolithic Figurines from Central Balkans

**Tamara Blagojević** (University of Belgrade, Faculty of Philosophy, Department of Archaeology, Belgrade), **Marko Porčić** (University of Belgrade, Faculty of Philosophy, Department of Archaeology, Belgrade)

The correlation between ideological factors and demographic processes in the Late Neolithic of Central Balkans can be approached in many ways. One of them is by studying a class of material such as clay figurines, which have often been interpreted as a representation of female fertility. The ways a community perceives and represents fertility, respectively reproductive power, pregnancy, and childcare, is closely connected to cultural and ideological postulates. The question is on what scales these perceptions can be seen in material culture, in this case – in the way of modeling clay figurines. For addressing this question, the statistical analyses of formal attributes on figurines that can be directly connected with pregnancy, such as the presence of emphasized belly, and the analysis of the figurines representing the mother and a child, are proposed. The results of this analysis would enable the insight in the frequency and the trends in the ways of expressing the understanding of fertility and the experience of childbearing and childcare in the Late Neolithic. This would also set the ground for future and more detailed analysis of the connection between these aspects and demographic processes, if one is established.

## Investigating Local Demographic Fluctuations during the Mesolithic and the Neolithic in the Danube Gorges: A Review of Radiocarbon, Skeletal and Settlement Evidence

**Marko Porčić** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Camille de Becdelievre** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Jelena Jovanović** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Mélie Le Roy** (UMR 5199 PACEA, University of Bordeaux, Pessac), **Sofija Stefanović** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Mark Thomas** (Research Department of Genetics, Evolution and Environment, University College of London, London), **Shennan Stephen** (Institute of Archaeology, University College of London, London), **Adrian Timpson** (Institute of Archaeology, University College of London, London)

The Neolithic transition is correlated with one of the first important event of demographic expansion. If the global pattern of the Neolithic Demographic Transition is well-documented at a regional level, however, a very few studies tackle the issue of local demographic fluctuations. The unique resolution of archaeological data available for the sites of the Danube Gorges (9500-5500 BC), as well as the size of the anthropological sample provide the opportunity to test the assumptions about fertility change between the Mesolithic and the Neolithic. In this prospect, we tested several independent methods of demographic reconstructions: 1. Summed probability distribution of 250 radiocarbon dates are used as a demographic proxy for population fluctuation; 2. The size of the housefloors are used to infer the size of the population on the site of Lepenski Vir; 3. Indicators of growth rate and fertility are calculated on the anthropological sample. The structure of the skeletal sample is independently explored in order to consider possible demographical anomalies from this line of evidence and to interpret them in term of funerary choices, or alternative demographic scenario. Through this example, we wish to emphasize the need of nuanced interpretations when attempting to discuss local demographic fluctuations.

## New Isotopic Investigations of Prehistoric Neonates from Vlasac and Lepenski Vir (Danube Gorges, 9500-5500 BC)

**Camille de Becdelievre** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Jelena Jovanović** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Sofija Stefanović** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Mélie Le Roy** (UMR 5199 PACEA, University of Bordeaux, Pessac), **Gwenaëlle Goude** (UMR 7209 LAMPEA, Aix-Marseille University, CNRS, MCC, Aix-en-Provence), **Estelle Herrscher** (UMR 7209 LAMPEA, Aix-Marseille University, CNRS, MCC, Aix-en-Provence), **Stéphane Rottier** (UMR 5199 PACEA, University of Bordeaux, Pessac)

One of the assumptions that could explain the increase of human fertility at the advent of the Neolithic is the shift toward the consumption of higher calorie foods – with the development of agricultural practices – which may have impacted the maternal energy balance. A possibility to collect direct informations about the diet of mothers during their pregnancy may be provided by isotopic investigations of newborns remains. In this prospect, we analyzed the stable isotopes of carbon, nitrogen and sulfur ( $\delta^{15}\text{N}$ ,  $\delta^{13}\text{C}$  and  $\delta^{34}\text{S}$ ) extracted from the collagen of 20 fetuses and neonates – aged from 26 up to more than 47 gestational weeks – from the Late Mesolithic and Early Neolithic sites of Vlasac and Lepenski Vir. Results are compared with available isotopic data on the adult population, especially with females ones. The impact of alternatives factors on isotopic ratios – hormones, pathologies, birth-stress – are also considered. Data are interpreted together with macroscopical information linked to the health-status of the children.

## Children Feeding Practices in the Danube Gorges at the Advent of Neolithic

**Jelena Jovanović** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Camille de Becdelievre** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Gwenaëlle Goude** (UMR 7209 LAMPEA, Aix-Marseille University, CNRS, MCC, Aix-en-Provence), **Mélie Le Roy** (UMR 5199 PACEA, University of Bordeaux, Pessac), **Sofija Stefanović** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade), **Estelle Herrscher** (UMR 7209 LAMPEA, Aix-Marseille University, CNRS, MCC, Aix-en-Provence), **Stéphane Rottier** (UMR 5199 PACEA, University of Bordeaux, Pessac), **Andrej Starović** (National Museum, Belgrade)

Changes in weaning practices are considered as one of the possible causes for the fertility increase at the advent of the Neolithic. A reduction of the period of breastfeeding – concomitant to the availability of new food (cereal, milk) – may have enabled mothers to be pregnant more often. The Danube Gorges Mesolithic-Neolithic population (9500-5500 BC) provides the opportunity to test this hypothesis by examining the feeding practices of 20 children from several sites of the Lepenski Vir culture. A multi-sampling strategy was performed and stable isotopes of carbon, nitrogen and sulfur ( $\delta^{15}\text{N}$ ,  $\delta^{13}\text{C}$ ,  $\delta^{34}\text{S}$ ) from the collagen of a slow renewing tissue (cortical part of bones) and of a faster renewing tissue (apex of teeth) were analyzed by EA-IRMS. This approach provides information on the diet of each individual at different times of their life; it also offers the possibility to discuss patterns of change, including the timing of the weaning process. Isotopic data are discussed together with macroscopical observations scored on the sample: teeth measurements, teeth wear, presence of hypoplasia, carries or calculus. Results are then interpreted in the light of the current understanding of demographic fluctuations in the Danube Gorges.

## Marrow Extraction from Herbivore Limb Extremities: A Hint to the Palaeolithic Infant Diet

**Stefan Milošević** (University of Belgrade, Faculty of Philosophy, Department of Archaeology, Belgrade)

Marrow extraction has long been recognized in present and archaeological hunter-gatherers as a major protein supplement. The amount of marrow closely corresponds to amount of meat on long bones, making limb bones equally attractive/unattractive for marrow processing as for meat. But, sometimes we observe behavior of processing low meat and marrow yielding limb extremities – notably metapodials and phalanges, often interpreted as a sign of food shortage. Because Paleolithic populations, based on stable isotopes, relied almost entirely on animal protein, it is reasonable to assume that they were satisfying vital nutrient needs almost entirely from terrestrial herbivores, and that human body had quite different metabolic rates than present day humans. All mammals store nutrients differentially in their body parts, hence making marrow chemically different in different bone elements. According to herbivore biology oleic acid, vital for infant development, have highest concentrations in metapodial and phalangeal marrow. Because these bones are among densest in herbivore skeleton containing marrow, they require considerable effort to be broken for a small return. A different interpretation of limb extremities processing is proposed – a conscious and intentional collection of oleic acid through marrow protein from these elements in order to supplement infant diet, rather than scavenging.

## Prehistoric Fertility: Births, Babies and Culture at the Danube Gorges (10000-5500 BC)

**Sofija Stefanović** (University of Belgrade, Faculty of Philosophy, Laboratory for Bioarchaeology, Department of Archaeology, Belgrade)

Although the rate of fertility was fundamental for human survival through evolution, our knowledge about biological and cultural influences to fertility is still very fragmented. At the other side, understanding of human fertility is very important not only if we want to investigate prehistoric fertility but also if we want to understand causes for fertility decrease or increase today. This poster suggest new methodological framework for further studies of prehistoric fertility by using bioarchaeological approach. New framework should include: 1) direct biological evidences about fertility from human bones; 2) investigation of correlation between nutrition and fertility through isotopic and trace element evidences from bones; 3) more evidences about influence of prehistoric culture to fertility through investigation of community concern to pregnancy, delivery and neonatal care. This poster present bioarchaeological framework to the investigation of fertility at the Danube Gorges population (10000-5500 BC).



## T04S023 - CONCEPTS AND METHODS FOR EXPLORING SUSTAINABILITY AND RESILIENCE IN THE ARCHAEOLOGICAL RECORD

**Organizers: Nicola Whitehouse** (University of Plymouth, Plymouth), **Carlo Citter** (University of Siena, Siena), **Cinzia Tavernari** (Abdullah Gül University, Kayseri)

Human-environment relationships remain a critical research focus in archaeology and offer rich opportunities to explore and understand how communities react, adapt and respond to environmental, social and resource changes. Concepts of



sustainability and resilience are terms that are frequently used in the context of ecology and geography; are these useful to archaeologists? How might we define archaeological sustainability and resilience? Definitions of ecological resilience, for instance, include an ability to 'bounce back' to a previous state or are defined by systems that are adaptable, with good coping mechanisms. Are any of these concepts useful within an archaeological context? What examples of sustainability and resilience may be found in the archaeological record? Recently, the use of technologies such as GIS and new approaches such as predictive modeling based on deductive analysis and agent based modeling offer exciting ways by which multiple lines of evidence may be brought together to test ideas of ecological, social and resource resilience and sustainability. In this session we invite papers that (i) focus on some of the theoretical debates and questions associated with the concepts of sustainability and resilience in the archaeological record; how might resilience be registered within the archaeological record, might this differ between different societies and socio-economic systems and are these useful concepts for archaeology to explore? What do we mean by 'cultural resilience'? (ii) explore novel methods and different approaches to the study of these themes and especially the use of new technologies. Do these methodological approaches provide new insights and reliable results into how humans managed resources, created sustainable systems and reacted to environmental and social changes? (iii) focus on specific case studies of sustainability and resilience in the archaeological record and explore the types of data that might be useful within the context of this debate. How do archaeologists best engage with these debates to ensure that the archaeological record is interpreted with the necessary expertise?

## ORAL PRESENTATIONS

### **Long-Term Histories of Continuity and Change around the North Pacific Rim: Resilience or Isolation?**

**Mark Hudson** (University of West Kyushu, Kanzaki), **Kara Hoover** (University of Alaska Fairbanks, Fairbanks), **Takamune Kawashima** (Yamaguchi University, Yamaguchi), **Mami Aoyama** (University of West Kyushu, Kanzaki)

Archaeological research on sustainability and resilience often begins with specific sites and sequences, but how can we extend such studies to examine larger regional patterns? This is a broader problem for resilience theory: can increased resilience in, say, the northern Mediterranean be achieved without weakening resilience to the south? This paper analyzes prehistoric to recent resilience around the North Pacific rim from Okinawa to California. Until European colonization, this region was characterized by socially complex societies that often resisted or remained resilient to outside changes for long periods. Despite massive social transformations in the nineteenth and twentieth centuries, some North Pacific societies can be said to retain high levels of resilience into the present day. This paper will use approaches from archaeology, biological anthropology and the health sciences to attempt to ascertain shared factors that both supported and weakened resilience around the North Pacific.

### **Water and Soils Historical Management in Sierra Nevada. Peasant Strategies to Transform a Mediterranean Mountain into a Vegetable Garden (Granada-Almería, Spain)**

**José María Martín Civantos** (University of Granada, Granada)

When intensive irrigation systems are introduced, a very different option becomes available, in which the social management carries out an equal or more important role than that of the physical conditions. Therefore, when this strategy circulates and eventually becomes preferential, the social organization centered around labor, takes on a fundamental importance. This agricultural model has to do with a social perspective, perhaps the least logical of the economic options possible in most of the mountainous or semi-arid zones. This is the case of the southeastern part of the Iberian Peninsula, where we can find many of this historical landscapes fossilized and still in use in a very diversified environment. Sierra Nevada (Granada-Almería, Spain), is a good example of this transformation since the arab-berber conquest in the VIIIth century. The system becomes extremely complex since it includes not only surface and underground water, but also soils, slopes, cultivated plants, forest or cattle. Mountain was transform into a vegetable garden, and this social option has been maintained and preferential until now, when agrarian crisis and global change framework have question this landscape survival. The paper is part of the MEMOLA project, funded by 7FP-European Commission.

### **Sustainable and Unsustainable Angkorian Water Management**

**Kasper Hanus Jan** (University of Sydney, Sydney), **Terry Lustig** (University of Sydney, Sydney), **Damian Evans** (University of Sydney, Sydney)

The importance of water management to Angkor's centre at the northwestern end of the Tonle Sap was epitomized by Groslier in his description of Angkor as 'le cité hydraulique'. His thesis was that Angkor's fate was largely influenced by its ability to manage its water resources effectively, and that once it could no longer install new water infrastructure (from the 13th century) "the city is dead". While few scholars would now agree that the deterioration of its water system was the sole cause of Angkor's decline, all would agree that its water played an important role in sustaining it as the centre for six



centuries. This contrasts strongly with the period when the centre of Angkor's administration was at Koh Ker, a period of only about 16 years. The cause of Koh Ker's period as the seat of the king being so short has long been speculated on, but now that the area has been surveyed by LIDAR, it has become clear that a crucial factor was the unsustainability of some vital hydraulic infrastructure. Given that both declines were for the same society, these two cases can be compared and contrasted using measures of resilience, without the complication of cultural diversity.

### **Cultural Resilience Concept as an Instrument of Interdisciplinary Studies of Human Response to Global Climate Change in the Black Sea Region on the Pleistocene-Holocene Boundary**

**Olena Smyntyna** (Odessa National I.I. Mechnikov University, Odessa)

Environmental, cultural, social and historical consequences of global climate changes on the Pleistocene-Holocene boundary accompanied with the Black Sea level raise are subject of alluring discussions since the Black Sea deluge hypothesis was put forward by W. Ryan and W. Pittman in 1997. During last years intensification of multidisciplinary field studies in the region as well as substantial update of theoretical frames of empirical data interpretation and prehistoric reconstructions have revealed methodological, regional and disciplinary peculiarities of conceptualization of different forms of human responses to global climate change in the Black Sea – Mediterranean 'corridor' (further – 'Corridor') during Holocene. Purpose of current contribution is to apply cultural resilience theory for production of new vision of paleohistorical, economic, demographic and other process took place at North-Western Pontic region during X-XI mill. BP in the light of 2 key issues: human migrations influenced by the sea level change and spread of productive economy. As the result, it is demonstrated that peculiarities of subsistence strategies and basic directions of human displacement in the region provoked by global climate change and the sea level rise could be viewed as peculiar mechanisms of 'bounce back' of local hunter-gatherers societies to their previous state.

### **Archaeology and Environment Over the Long Term of a Landscape Near Châteaugiron (Brittany-France). History of the Territory's Development and Methodological Reflection**

**Isabelle Catteddu** (INRAP – University of Paris I, Cesson-Sévigné)

The multiscale and interdisciplinary reading of archaeological data from excavations conducted over large surface areas are renewing the study of diachronic settlements, but also the study of landscapes, field systems, environment, and agro-pastoral practices. This critical approach has been carried out on the site of Châteaugiron (Brittany, France) : a recent excavation, conducted over a surface area of 25 hectares, which revealed settlements dating from the 3rd millennium BC to the present day. On this site, but also as part of a larger area of research, we had the opportunity of a study using transversal regards and disciplines (archaeology, archaeogeography, geology, geomorphology, history, bioarcheology....). Multiplying analytical scales permitted an examination in the form of "scenarii" of the questions of inheritance, transmission, creation and transformation, resilience, sustainability, resource management, environmental adaptability, etc. We also revisited the issue of the evolution of field systems over the long term, together with an analysis of rural habitat within its environment, via the study of its rhythms, ruptures and continuities. The studies regularly bring to light transformations of the landscape rather than discontinuities. They remind us of the need to increase levels of analysis to understand the dynamics of these occupations.

### **Concepts and Methods for Exploring the Forms of Landscapes in the Long Term: The Case of French Archaeogeography**

**Magali Watteaux** (University of Rennes 2, Rennes)

Recent researches in Archaeogeography have shown that it is impossible to offer a faithful reconstruction of ancient morphological networks (networks of roads, of plots of land and of habitats) despite the increasing accumulation of archaeological data. Indeed, one studies less what things were, because that goal seems increasingly difficult to achieve, than what things have become. Before hope to achieve eventually one particular old object in its form and its historical functions, we must spend more and more time to study the conditions of its transmission to us, in the long term. However, these transmissions are neither linear nor simple but deeply complex and dynamics: we speak to characterize this phenomenon about "transmission" (transmission despite and through transformations). At the heart of this new way in approaching the question of the sustainability of landscapes, there is the concept of resilience, borrowed from geographers. This revolution in the ways of thinking about inherited spatial forms requires to do otherwise: - the need to take into account the contemporary states and to break down barriers between academic periods; - the need to go through a long process of sorting through heritages before expecting any reconstitution; - the need to exceed the level of modeling (the object of the study of archaeologists) to work on the form; - the need to exit the limits of the excavations and to implement a methodology based on multi-scale approach. So, Archaeogeography is the discipline that studies the memory of the forms of landscapes because they are memory objects that are transmitted as they are transformed in the time-space. Archaeological data offer the specific advantage of dating some key moments in the history of these forms. This presentation will

provide an opportunity to present this discipline, its objectives, tools and results that illustrate some of the phenomena of resilience of some elements of landscapes.

### **Location Preference Analysis in Early Roman Colonial Landscapes**

**Anita Casarotto** (Faculty of Archaeology, Leiden University, Leiden)

As has become clear after critical restudy of the evidence dated to the 3rd century BC, the conventional view of Roman colonies as small copies of Rome that radically transformed the conquered lands is less straightforward than has usually been assumed. One central question regards early colonial settlement organization in Central-Southern Italy and its socio-economic rationale. On the admittedly scarce evidence currently available, it is not to be excluded that the first colonists had actually opted for a less invasive and more environmentally sustainable settlement model. Arguably, they may have preferred a multiple-core nucleated settlement system, rather than farms built on their own land plots resulting in an impressive ordered rural territory. Such an alternative model would thus have looked more like the non-urbanized indigenious pattern, within which clusters of sites such as villages played a key role. The issue of both settlement patterns and significant differences (if any) in location preferences between early-colonial and native communities is approached here by applying quantitative spatial analysis and GIS-based predictive modelling. To illustrate how such a location preference analysis may help clarify the character of early Roman expansion, the case of the colony of Venusia is presented.

### **Evaluating the Environmental Sustainability of Settlements through Cumulative Cost Surfaces. Towns and Castles in Medieval Tuscany**

**Carlo Citter** (University of Siena, Siena)

Cumulative cost surfaces have been the core of the least cost path analysis for decades. Recently, some researchers found cumulative cost surfaces helpful in a broader evaluation process. In particular, they proved to raise many brand new questions to challenge the archaeological and historical datasets in terms of environmental sustainability. The main goal of this paper is to evaluate whether the territory controlled by towns and castles could sustain -i.e. to produce enough food - the people that presumably used to live within it. I shall present some case studies from medieval Tuscany, and the procedures adopted.

### **Routes and Roads' Resilience in the Longue Durée - The Southern Upper Rhine Region from the Late Iron Age to the Early Middle Ages**

**Sophie Hueglin** (Newcastle University, Newcastle)

The Southern Upper Rhine region or Regio TriRhena – as it is called by politicians today – is one of the main European axes of communication and transportation. The Rhine valley and Belfort gap shape together with the mountain barriers of the Vosges, the Black Forest and the Jura natural corridors running North-South and West-East meeting at the so called “knee” of River Rhine at Basle (CH). The area was continuously settled since the early Neolithic period and thus would be perfectly suited for landscape archaeology in the Longue Durée. But the region is divided between three nations: Germany, France and Switzerland. This means, that there are not only two different languages, several political entities and three geographical coordinate systems, but also various scientific approaches in archaeology to be considered. Previous studies in the region's historical infrastructure, land use and settlement distribution in relation to landscape features were mostly confined to modern borders. Being based on different standards and not using the same methodological approach their results cannot be compared or brought together easily. This paper will point out the potential in viewing the region as a whole. As a first approach analyzed least-cost paths between settlements will be compared with archaeological remains of road systems. Based on data from the Late Iron Age to the Early Middle Ages traffic infrastructure's long-term sustainability and resilience will be looked at.

### **Resilient Road Networks and Sustainable Route Facilities: A Case Study from Medieval Near East**

**Cinzia Tavernari** (Abdullah Gül University, Kayseri)

Exploiting the results of several years of historical and archaeological research and mainly using GIS based methods (Least Cost Path and Cumulative Cost Surface), this contribution provides new insights on the development of road networks and the dynamics of the founding of wayside caravanserais in the Near East during the High Middle Ages. Notably a period of significant political upheavals in the Near East, the High Middle Ages (XI-XIV c.) provides an ideal chronological frame in which to investigate the resilience of one of the main routes of the region, namely the Cairo-Damascus road. How did the path of this paramount route cope with the constant turmoil that characterized the medieval period? Was the track influenced mostly by geographic features or by the political situation? In the present paper, I shall also consider the issue of caravanserais' sustainability. The question if caravanserais represented sustainable equipment is crucial for an improved understanding of both the spatial distribution of the edifices and the longevity of the institution. To achieve this result, I will evaluate the resources needed to keep the caravanserais running as charitable institutions and how many travellers they could lodge free of charge.

## **The Resilience of Travel Culture along the North-Western Caspian Corridor and Its Archaeological and Environmental Signatures**

**Irina Shingiray** (Boston University, Boston), **Dmitriy Buvaev** (Russian Academy of Science – Kalmyk Branch)

This paper will address the resilience of local knowledge which was necessary in order to travel along the northern semi-desert portion of the Western Caspian corridor which connected the Middle East with the Northern Eurasia via the Caucasus. This passageway was mentioned by Strabo and medieval Islamic geographers as the “Wilderness Way.” Because of the highly dynamic nature of this landscape, including the seasonal variability of water, plants, and dunal topography, local knowledge and service along this route produced a characteristic travel culture over the long term. This resilient travel culture has its particular archaeological signatures and its own corpus of “folklore” which demonstrate the closely-knit interaction between people and landscape in this territory. Our extensive fieldwork in the region, the application of GIS and RS to monitor the dynamics of sand massifs, the coastal line of the Caspian, and the shifting networks of the old and new road system along that corridor, coupled with research of the local knowledge, politics, and folklore over the long term allows us to talk about the resilience of this travel culture and existence of the official and unofficial (sub-culture) of travel in this region from antiquity to modern times.

## **Modeling Sustainability and Resilience through the Investigation of Critical Habitats: A View from the US Southwest**

**Michael Heilen** (Statistical Research Inc., Haymarket), **Jeffrey H. Altschul** (Statistical Research Inc., Haymarket)

Cultural and ecological landscapes are the result of a deep history of human-environment interactions, historical contingencies, and adaptive cycles. The diachronic, trans-disciplinary, and spatially-explicit perspective of archaeology permits investigation of the sustainability of cultural and ecological systems and their resilience to perturbations at multiple temporal and spatial scales. GIS-based archaeological modeling approaches are increasingly important in evaluating such relationships, including investigation of how changes in subsistence and land use relate to spatial and temporal variation in cultural and environmental variables. Locational modeling approaches, for example, frequently use environmental characteristics as independent variables to predict variation in site location according to time, environment, and site type. Conversely, archaeological modeling approaches can also make use of site location data and particular site types and attributes to identify critical ecological habitats of the past. This approach permits systematic investigation of the role that critical habitats have played through time and among cultures in the sustainability and resilience of land use systems. In this paper, we explore this concept using several case studies from the US Southwest to show which habitats figured most prominently in sustainable land use systems and which habitats became important during periods of dramatic cultural and environmental change.

## **Using Resiliency Model Concepts to Explore Human-Environment Interactions: Environmental Variability and Adaptive Cycles of Change in Cappadocia (Turkey) during the Last 10,000 Years**

**Samantha L. Allcock** (School of Applied Sciences, Bournemouth University, Bournemouth)

Recent developments in how palaeoenvironmental and archaeological data sets could be combined and integrated have included the application of adaptive response and resilience behaviour concepts (Nelson et al., 2007 *Ann. Rev. Environment and Resources* 32, 395-419; Redman, 2005 *Am. Anthropologist* 107, 70-77). The question of socio-economic adaptation and adjustability, as identifiable in the archaeological record, might therefore be examined in light of variable and longer-term environmental and climatic changes. A ‘resilience theory’ conceptual framework is used here to assess and characterise the changing periods of human occupation and coincident climatic and environmental changes identified from XRF core scanning of Nar Lake sediments and archaeological settlement data from Cappadocia, Turkey. The adaptive model applied in the Cappadocian context identified links at different scales of analysis including four macro scale cycles. At no point throughout the Holocene were climatic and environmental variability seen as the sole drivers of societal change but there were periods when they became important factors in shaping levels of societal resilience. For instance towards the end of LBA, climate (in this case sustained aridity) may have put added stress on communities at times of already dwindling resilience levels and led to major societal re-organisation.

## **Ecological Resilience and Early Agriculture**

**Nicola Whitehouse** (University of Plymouth, Plymouth)

Concepts of resilience have been developed within the ecological sphere to examine how animal and plant species, communities and ecosystems cope with disturbance and their ability to ‘bounce’ back to a previous state or recover from a period of environmental perturbation. Resilience has also become a preoccupation within social science, examining how resilient are human populations and societies to change – whether internally or externally derived. There have, however, been limited attempts to examine concepts of resilience within a long time frame, drawing upon the archaeological record.

Archaeology offers the advantage of not only providing a long term perspective of how communities cope (or not) with perturbation and the traits associated with such communities, but also the opportunity to link concepts of social and ecological resilience, since as a discipline archaeology often works at the interface of ecology and human ecology. This allows us to potentially explore not only the direct effects of environmental perturbations, but also indirect effects and feedback effects upon the human ecosystem. In this contribution I will explore some of these ideas by examining how early agriculture affected Neolithic ecosystems and vegetation, its ecological impacts and recoveries and how these in turn affected the ecological and social resilience of human populations. What was the resilience of the ecosystems that humans were modifying as agriculture developed and how did this change across time? How do we measure this? Did the ecological interactions associated with agricultural activities impact upon ecosystem function and dynamics and if so, did this impact upon human decision making processes and social spheres? These issues will be examined by reference to the Neolithic in Ireland and adjacent areas.

### **Sustaining Herds? Animal Demography and Vulnerability in Neolithic Europe**

**Sarah B. McClure** (Department of Anthropology, Pennsylvania State University, State College), **James W. Wood** (Department of Anthropology, Pennsylvania State University, State College)

Addressing sustainability and resilience in the archaeological record rests largely on questions of scale. The intensity of human activity and its effects on local and regional environments are at the core of ecological approaches investigating the spread of farming into Europe, including models of niche construction and human behavioural ecology. Despite interest in animal domesticates as key components of these models, little attention has been given to the demographic and biological underpinnings of Neolithic herds. In this paper we assess to what extent Neolithic herds were sustainable and the potential, scale-dependent vulnerabilities for herd survival. Models based on modern domestic, feral, and wild species-specific fertility and mortality and age-specific herd structures provide the framework for identifying factors related to herd size, vulnerability, and sustainability. We then illustrate the archaeological implications of this work through case studies from the Balkans and central Europe and explore cultural risk minimization strategies that may have been called upon to mitigate vulnerabilities.

### **Island Biogeography and Human Resilience during the Bronze Age in the Aeolian Archipelago**

**Girolamo Fiorentino** (Department of Cultural Heritage, University of Salento, Lecce), **Valentina Caracuta** (Department of Cultural Heritage, University of Salento, Lecce), **Cosimo D'Oronzo** (University of Salento, Lecce), **Maria Clara Martinelli** (Regional Board of the Archaeological Park of Aeolian Islands, Archaeological Museum L. Bernabò Brea, Lipari, Messina)

The Aeolian Archipelago, located in the southern Tyrrhenian Sea west of Calabria and north of Sicily, consists of 10 islands and islets, of which only 7 are populated. Lack of perennial water resources and a dearth of arable land limit the possibility of extensive agriculture, exposing human communities to the risk of famine and starvation. The carrying capacity of the island system, defined as the potential to sustain a certain human population in equilibrium, is not only determined by environmental parameters, since cultural variables have always influenced human dynamics in the archipelago. The Aeolian Archipelago has a long history of human occupation, beginning during the Neolithic, while during the Bronze Age, the Aeolians prospered thanks to maritime commerce with the Aegean. The opportunity to integrate human history with environmental developments during the Bronze Age prompted our adoption of a combined approach using carbon isotope analyses and <sup>14</sup>C dating from archaeobotanical remains to identify trends in rainfall variation during the 2nd millennium BC. Thanks to the high chronological resolution ensured by the use of AMS techniques, climate signals were integrated with the history of Aeolian communities and the resilience of settlers to the harsh environment was evaluated.

### **Late Antique Husbandry in the South-Eastern Alps Amid the Chaos of a Crumbling Empire**

**Borut Toškan** (Institute of Archaeology of the Research Centre SAZU, Ljubljana)

In the area of south-eastern Alps the term Late Antiquity excellently expresses the time which is characteristically still Roman, and yet, in addition to incorporating settlement, economic, social and even climatic changes, it is also defined by the emergence and propagation of Christianity as well as the partial presence of barbarian populations. Its character is reflected in the altered settlement pattern, in the radically changed burial rites, in the predominance of Early Christian architecture and of course, in the fine material finds. But what about resource resilience and sustainability during this politically and security unstable situation? By dealing with a variety of zooarchaeological methods and approaches, including biometry, mortality curves and butchery patterns, we tried to evaluate how change in the intensity of production, taxonomic richness of livestock (both in terms of species and phenotypes), local and long-distance supply systems as well as social stratification of the population were determined by the chaos of the crumbling empire. The results indicated Late Antique hill-top settlements to have been economically rather autarchic. The husbandry was based on small size animals of primitive local forms, with pig, poultry and/or sheep-husbandry progressively gaining more and more ground on expanse of cattle.

### **Charcoal Burning Platforms are Good Indicators to Measure the Sustainability of Forest Resources. The Case of the Medieval Metallurgical Forest on Mount Lozère (French Massif Central)**

**Sandrine Paradis-Grenouillet** (Geolab UMR 6042 CNRS, Limoges), **Gabriel Servera-Vives** (University of Limoges in the laboratory UMR 6042 CNRS GEOLAB, Limoges), **Philippe Allée** (University of Limoges in the laboratory UMR 6042 CNRS GEOLAB, Limoges)

Wood has played a fundamental role in the evolution of human societies. Currently forested landscapes represent the ecological inheritance of centuries of forest management to supply the fuel necessary human activities. To meet their demands for firewood societies gradually modified, transformed and remodeled the landscapes they inhabited. Archaeological charcoal burning platforms provide an exceptional context of study to question the sustainability of wood resources. They are spatial indicators of forest presence and through wood charcoal analyses (determination of wood species and diameter) they bring precious information about the botanical composition and the forest management. Mount Lozère provides an exceptional archaeological context to study the human-environment interactions, particularly for the medieval period. This territory has known an important metallurgical activity from the 11th to the 15th century. Metallurgical activities have long been blamed for the disappearance of the woodland, but the botanical analyses show today the sustainable forest management of a beech coppice during four centuries (diameter and species of exploited wood haven't changed all over the period of metallurgical activities). This paper is an opportunity to highlight the interest of studying charcoal burning platforms (archaeological remains often neglected) to examine forestry practices and to assess the sustainability of natural resources.

### **POSTER**

#### **Assessment of Stability and Change in European Neolithic and Early Bronze Age Agricultural Systems**

**Sue Colledge** (Institute of Archaeology UCL, London)

Contrary to the widely held assumption of the unimpeded growth of population after the initial introduction of farming in Europe, it has now been demonstrated that there were periodic fluctuations, resembling boom-and-bust patterns, in regional population densities (Shennan et al. 2013, Whitehouse et al. 2013). The aims of the EUROEVOL project ([https://www.ucl.ac.uk/archaeology/research/directory/euroevol\\_shennan](https://www.ucl.ac.uk/archaeology/research/directory/euroevol_shennan)) are to assess to what extent these fluctuations are a reflection of changing patterns of economic growth and decline, and of relative stability of subsistence systems. Using a dataset of c.14,000 archaeobotanical records from over 300 Neolithic and early Bronze Age sites in northwestern Europe it is possible to explore the likely effects on regional demographics of agricultural innovations, over-exploitation of resources and increasing or decreasing yields in crop and livestock products. Diachronic patterns in the use of domestic cereal and pulse crops are compared in conjunction with associated weed taxa categorised according ecological indicator values (e.g., for soil fertility, water content, pH levels, etc.) to enhance understanding of the relationship between environmental conditions and different cultivation regimes.

## **THEME 5**

**“Times of Change:  
Collapse and Transformative Impulses”**





## THEME 5: TIMES OF CHANGE: COLLAPSE AND TRANSFORMATIVE IMPULSES

Change is a topic of great concern to archaeological research. It is evident that transformative impulses come from a diversity of directions, including the environment and especially, social institutions and sociocultural relations. Whether it is the formation of new socio-economic conditions, ideologies, subsistence regimes, technologies, migrations or the collapse and rise of new political entities, transitions have found increased voice and attention. Traditional site-specific excavations have been greatly enhanced by embedding the research into regional studies of the hinterlands of central settlements. Furthermore, the development of instrumental analyses has elevated artifactual and eco-factual data to inform upon these transformations. Special attention now given to significant new understandings of chronology stemming from recent research, reassessments of stratigraphy and the proliferation of environmental information has provided context to the fluid and dynamic social conditions at work through time.

This session invites papers on change, transformation and the impact with which new structures were subsequently formed.



### T05S001 - RE-ASSESSING URBANISM IN PRE-ROMAN EUROPE

**Organizers:** **John Chapman** (Durham University Department of Archaeology, Durham), **Johannes Müller** (Kiel University, Institute of Pre- and Protohistoric Archaeology, Kiel), **Mikhail Videiko** (Institute of Archaeology, Kyiv), **Bisserka Gaydarska** (Durham University Department of Archaeology, Durham), **Marco Nebbia** (Durham University Department of Archaeology, Durham), **Robert Hofmann** (Kiel University, Institute of Pre- and Protohistoric Archaeology, Kiel)

Since Gordon Childe, the 'Big Narratives' of prehistory have included the origins of urbanism, whether in the Near East and Anatolia, Europe and worldwide. However, the scale of this topic has been antithetical to most post-processualist approaches, leaving a theoretical vacuum at the heart of the debate over urban origins. Recent research on 'Big Weird Sites' (Cahokia, Greater Zimbabwe, Angkor Wat, etc.: SAA 2013 session) has begun to create a framework for the study of settlements which are far larger, and possibly far more complex, than their coeval sites. From the traditional Aegean – European perspective, urban origins lie in the 3rd millennium BC, exemplified by Early Bronze Age centres such as Troy and Knossos. But this view ignores a set of large settlements from the late 5th and 4th millennia BC in the Tripillia (aka Tripolye) group of modern Ukraine and Moldova. A group of over 30 of the so-called Tripillia mega-sites cover areas of over 100 ha, while the largest (Talljanky, at 340ha) is as large as large EBA Near Eastern city at Uruk. These are the largest settlements in 4th millennium Europe. It is now time to include these mega-sites in a discussion of scale and settlement nucleation in prehistoric Eurasia and discuss how such massive agglomerations may have functioned. The principal aims of this session are twofold: (1) to assess the role of the Tripillia mega-sites in the debate over urban origins; and (2) to set the mega-sites in a comparative framework of urban origins in Europe and the Aegean. Prospective speakers in this session are invited to address the research issues of early developments towards urbanism in the following cultural contexts: - Tripillia mega-sites - The earliest urban settlements in Anatolia and the Near East. - Minoan and Mycenaean urban formations. - Bronze Age mega-sites in temperate Europe (e.g., Corneşti). - Late Bronze Age and Iron Age urban sites around the Mediterranean - Temperate European Iron Age oppida.

### ORAL PRESENTATIONS

#### Introduction

**John Chapman** (Durham University Department of Archaeology, Durham), **Johannes Müller** (Kiel University, Institute of Pre- and Protohistoric Archaeology, Kiel), **Mikhail Videiko** (Institute of Archaeology, Kyiv)

Since Gordon Childe, the 'Big Narratives' of prehistory have included the origins of urbanism, whether in the Near East and Anatolia, Europe and worldwide. However, the scale of this topic has been antithetical to most post-processualist approaches, leaving a theoretical vacuum at the heart of the debate over urban origins. Recent research on 'Big Weird Sites' (Cahokia, Greater Zimbabwe, Angkor Wat, etc.: SAA 2013 session) has begun to create a framework for the study of settlements which are far larger, and apparently far more complex, than their coeval sites. From the traditional Aegean – European perspective, urban origins lie in the 3rd millennium BC, exemplified by Early Bronze Age centres such as Troy and Knossos. But this view ignores a set of large settlements from the late 5th and 4th millennia BC in the Tripillia (aka Tripolye) group of modern Ukraine and Moldova. A group of over 30 of the so-called cover areas of over 100 ha, while the largest (Talljanky, at 340ha) is as large as large EBA Near Eastern city at Uruk. These are the largest settlements in 4th millennium Europe. It is now time to include these mega-sites in a discussion of scale and settlement nucleation in prehistoric Eurasia

and discuss how such massive agglomerations may have functioned. The principal aims of this session are twofold: (1) to assess the place of the Trypillia mega-sites in the debate over urban origins; and (2) to set the mega-sites in a comparative framework of urban origins in Europe and the Aegean.

### **A Ghost is Still Haunting Europe: The Neolithic Proto-Cities**

**Bisserka Gaydarska** (Durham University Department of Archaeology, Durham)

More than 10 years ago, the late Dan Monah published a paper with a very similar title to the above, in which he argued against Trypillia mega-sites being seen as 'Neolithic proto-cities'. Not only have his arguments not been appreciated but recent years have seen an 'explosion' of towns and cities, emerging on the prehistoric map of (Eastern) Europe like mushrooms after rain. Is 'urbanism' fashionable yet again? Has post-processual relativism affected the way that settlements are seen? Or are we really faced with a previously unrecognized phenomenon? In this paper, I shall try to address these questions by exploring the evidence of the Trypillia mega-sites. The pros and cons for naming these sites as 'proto-cities' will be critically assessed within a wide framework of concepts, including Childe's criteria for urban settlements, low-density urbanism and Fletcher's view of global settlement development.

### **Interpreting Trypillia Culture Mega-Sites: Old and New Data on the Processes of Urbanization in Copper Age Europe**

**Mikhail Videiko** (Institute of Archaeology, Kyiv)

The interpretation of the large area (up to 350 ha) of settlements of the Tripillia culture became a problem after the discovery of several such sites through aerial photography and geomagnetic survey in the 1970s. It was suggested that these sites represented the 'proto – city' type of settlement. Evidence of the processes of urbanization in the Carpathian-Dnieper region included such features as large settlements with high populations, complex planning structures, defensive systems and unusually large, probably public buildings. Also some kinds of craft working (pottery production, metallurgy and flint processing) were detected. In the last ten years' research, geomagnetic prospection and new excavations allowed the specification of the size and density of settlements, which were characterized by an even greater number of inhabitants than was previously assumed. It turned out that the planning structure of the mega-sites was even more complex than previously imagined. We also found a system of large -scale public buildings and fortifications. Excavations confirmed the presence of temples and pottery kilns, allowing us to speak about the complex processes of the formation of proto-cities.

### **Three Decades of Large-scale Prospection on Moldavian and Ukrainian Copper Age Settlements**

**Knut Rassmann** (Römisch-Germanisch Kommission, Frankfurt am Main), **Vladimir Kruts**, **Aleksey Korvin-Piotrovskij**, **Karsten Mischka**, **Johannes Müller** (Kiel University, Institute of Pre- and Protohistoric Archaeology, Kiel), **Mikhail Videiko** (Institute of Archaeology, Kyiv)

Almost unnoticed in the West, in the early 1970s Ukrainian archaeologists developed an innovative research design to investigate the large Copper Age settlements of the Tripolye-Cucuteni Culture. The combination of aerial photography and large-scale geomagnetic prospection allowed the detection of these settlements' fundamental structures. The large number of excavations which followed was consequently principally based on and guided by these data, particularly in terms of the highly visible (and characteristic) burnt houses. In 2007, CAU Kiel and the Romano-Germanic Commission started an ambitious prospection program intended to investigate Copper Age settlements on a broader scale. This large-scale prospection in Moldavia and Ukraine revealed the settlement structures of Chalcolithic communities which were amazing, both in terms of the precision of the results and number of details they provided. The new data were used to evaluate former prospection and confirmed key issues about the basic layouts of the settlements that were studied.

### **Stabilization Points in Carrying Capacity of the Cucuteni-Tripolye Populations: Re-assessing the Formation and Development of the Giant-Settlements**

**Aleksandr Diachenko** (Institute of Archaeology, NAS, Kyiv), **Ezra B.W. Zubrow** (SUNY at Buffalo, Buffalo)

Settlements of the Cucuteni-Tripolye cultural complex (ca. 4800 – 2900 calBC) provide an excellent dataset for the analysis of long-term demographic and socio-economic development of these prehistoric populations. Micro-regional and super-regional studies are made possible by the large territory that extends from the Romanian Carpathian Mountains to the Eastern bank of Dnieper and by the many short-term occupations accompanied with well-developed relative chronologies. Our presentation focuses on both the stabilization points in the carrying capacity of the Cucuteni-Tripolye populations and the resulting stabilization of the occupations. Special attention is paid to the giant-settlements in the Southern Bug - Dnieper interfluve. The paper uses simulations based upon well-known mathematical approaches in theoretical ecology. The results are two significant changes in the carrying capacity of the populations and the consequent values for regional carrying capacity in the Southern Bug - Dnieper interfluve, as well as new stabilization points for the population growth. The result is a substantive re-assessment of the formation and development of the giant-settlements. Secondly, the paper points out the implications regarding the improvement of mathematical approaches to demography.

## Proto-towns or not Proto-towns?: That is the Question!

**Francesco Menotti** (University of Basel, Basel), **Aleksandr Diachenko** (Institute of Archaeology, NAS, Kyiv)

At the time of their development, the Chalcolithic Cucuteni-Tripolye giant-settlements (also known as ‘mega-sites’) were the largest residential agglomerates in Europe and beyond. It is therefore not surprising that their sheer size has been triggering incandescent discussions as to whether they should be considered as ‘proto-towns’, or simply ‘settlements’. The concept of ‘Tripolye [Trypillia] proto-towns’ is by no means new; it was firstly advanced by N.M. Shmaglij in the early 1970s, continued throughout the 1990s and 2000s, and it has even recently been ‘re-vitalised’ (e.g. M. Yu. Videiko and N. B. Burdo). It should be noted, however, that arguments in favour of the urbanization process in Cucuteni-Tripolye residential complexes have also been criticized throughout the above-mentioned period (see V.A. Kruts, V.M. Masson, E.A. Saiko and A.G. Korvin-Piotrovskiy). This paper discusses a series of issues in order to help the delegate understand whether the Tripolye ‘mega-sites’ should (or should not) be regarded as ‘proto-towns’. For instance; what is meant by a ‘(giant)-settlement’? What are the characteristics that allow a residential unit to qualify as a ‘proto-town’? And, last but not least, do we have any other evidence that confirms similar ‘urbanization processes’ in Chalcolithic Ukraine, or in the nearby regions?

## Recent Studies in Talianki

**Volodimir Kruts** (Institute of Archaeology, NAS, Kyiv)

Talianki is the largest settlement of the Tripolje culture. It has been studied since 1981. Remains of about 50 dwellings were excavated along this period. This led to the reconstruction of the interior and exterior of the Tripolye house as well as the socio-economic reconstructions of their social structure. New site features were investigated recently, following geo-magnetic surveys conducted by the Römisch-Germanische Kommission. Kilns associated with ceramic production were excavated in 2013. This led to the conclusion about ceramic craft production that had only previously been assumed. Besides this, surveys in the Southern part of a settlement found three objects that are small in size but with abnormally strong magnetic anomalies. These objects should be excavated prior to the EAA Meeting. They may have been associated with metallurgical production.

## Maidanet’s – a Tripolje Megasite on the Move

**Robert Hofmann** (Kiel University, Institute of Pre- and Protohistoric Archaeology, Kiel), **Natalia Burdo** (Institute of Archaeology NAS of Ukraine, Kyiv), **Walter Dörfler** (University of Kiel, Kiel), **Stefan Dreibrödt** (University of Kiel, Kiel), **Wibke Kirleis** (Graduate School “Human Development in Landscapes”, Christian-Albrechts-University Kiel, Kiel), **Karsten Mischka**, **Johannes Müller** (Kiel University, Institute of Pre- and Protohistoric Archaeology, Kiel), **René Ohlrau** (Christian-Albrechts-University Kiel, Kiel), **Knut Rassmann** (Roman-German Commission, Frankfurt), **Mikhail Videiko** (Institute of Archaeology, Kyiv)

Surveys and excavations in the last two years opened again the huge archive of the Maidanet’s mega-site for extensive studies on social demography, economy, and political and cultural changes. The fieldwork resulted, on the one hand, in a clear picture of different feature types, while, on the other hand, in models of intra-site interactions during prehistoric times. The reconstruction of the Neolithic landscape and the organization of social space are indicating a society which is deeply rooted in the exploitation of natural and human resources. A series of 14C dates provides a new base to test hypotheses concerning the dating, development and duration of the site. Overall, this ongoing research will contribute to a much better understanding of the nature of the mega-site as well as of the possible causes for their formation and downfall. In relation to soil formation processes, it can be discussed whether the carrying capacity of the local environment was reached or the collapse of this mega-site was linked to water or other shortages.

## The Landscape of the Tripolje Mega-Sites: Preliminary Results from Nebelivka Hinterland, Ukraine

**Marco Nebbia** (Durham University, Department of Archaeology, Durham)

The study of “urban” sites has been tackled in many different ways, but mainly by concentrating on research at the site level, looking at their structure, planning and development. Recently, research has started to focus on formation processes, re-focusing the investigation towards the broader contexts in which “Big-Sites” are located. The aim is a better and more complete understanding of urban origins as complex systems of different processes which have led to “Big-Site” formation. The case of the Trypillia group offers an excellent opportunity to investigate the phenomenon in which over 30 mega-sites (each covering more than 100 ha) developed in the late 5th and 4th millennia BC in modern Ukraine and Moldova. This paper will present results from the study of one of these sites (Nebelivka, UA) where, along with the research on the site itself, a systematic off-site analysis of satellite images and fieldwalking is being carried out in order to establish the formation and development of the settlement pattern. The use of remote sensing combined with fieldwalking has resulted in the detection and identification of a variety of archaeological sites and environmental features, which is helping to build up a more complete picture of the Tripillia mega-site phenomenon.

## Settlement Planning at the Trypillia Mega-Site of Nebelivka – Improvisation and Adaptation

**John Chapman** (Durham University Department of Archaeology, Durham)

Recent research by British, Ukrainian and German teams have used modern geophysical techniques to achieve what we have termed the second phase of the Trypillia mega-site ‘Methodological Revolution’. A prime example is the research of Durham University geophysicists under the aegis of the joint Anglo - Ukrainian Project ‘Early urbanism in prehistoric Europe: The case of the Trypillia mega-sites’ to produce the first complete modern mega-site plan. Many types of new features have been discovered at the 250-hectare site of Nebelivka., as well as a wide range of new feature combinations. In this paper, I use some insights from performance theory and ideas about the maintenance of tradition to explore the ways in which people developed the three spatial levels of the mega-site plan – the individual household (both burnt and unburnt structures), the ‘neighbourhood’ level (or feature combinations) and the community level (or complete plan), as well as the ways in which people responded to the opportunities and constraints provided by each level in tension with the other two levels. This deconstruction of mega-site ‘planning’ in the Trypillia B2 phase offers some interesting insights into the social order at Nebelivka.

## From One Mega-Site to Another : A Comparative Look at Trypillia Mega-Sites and Neolithic Çatalhöyük in Anatolia

**Lindsay Der** (Stanford University, Department of Anthropology, Stanford), **Justine Issavi** (Stanford University, Department of Anthropology, Stanford)

This paper considers similarities and differences in the trajectories between Trypillia mega-sites in Eastern Europe and that of the Neolithic mega-site of Çatalhöyük in Anatolia. At 33 hectares, with 18 levels of Neolithic occupation spanning 1,200 years, and peaking at around 8,000 inhabitants, Çatalhöyük is considered to be an important source of evidence regarding the transition from settled villages to urban agglomeration. While these mega-sites are spatially and temporally separated, there are a number of startling parallels between them. Thus, a comparative look at different types of mega-sites and their rise and fall has the potential to elucidate new insights into broader questions concerning highly populated permanent settlements in the prehistoric and contemporary concepts of urbanism. Within this comparative framework, we consider paths of growth and decline, social organization, and settlement structure for these mega-sites, with a specific focus on areas where stark parallels exist such as iconography and the changing role of the house throughout site occupation.

## “Large” Settlements of the Late Neolithic Central and Northern Balkans: Current Evidence and Perspectives

**Boban Tripković** (University of Beograd, Department of Archaeology, Belgrade)

In recent decades, research on Neolithic settlements of the Central and Northern Balkans has gradually transformed from an initial highly targeted focus on stratigraphy and development of tell sites to the current intensive surveys and excavations of ‘large’ flat sites. It is known from previous research that some Vinča culture sites covered several hectares; however, their apparent size was usually seen as a result of the shifting of the settlement through time, or simply a consequence of modern-day disturbances, such as the dispersal of archaeological material due to agricultural activities. Through the use of geophysical methods in archaeological prospection, however, it has been confirmed that many of the ‘large’ sites did indeed occupy surfaces of 10 or more hectares. Moreover, it has been revealed that some settlements were surrounded by ditches, and that the layout of buildings was planned and organized in a way that indicates some form of communal order. These settlements flourished in various parts of the Central and Northern Balkans in the period from the mid-6th to the mid-5th millennium BC. This paper summarizes the information available so far on these large Vinča culture settlements, and discusses the socio-economic context in which they appeared and developed.

## “Mega-Sites” of the Michelsberg Culture in West-Central Germany

**Detlef Gronenborn** (Römisch-Germanisches Zentralmuseum, Mainz), **Sandra Fetsch** (Römisch-Germanisches Zentralmuseum, Mainz), **Sabine Kuhlmann** (Vor- und Frühgeschichtliche Archäologie, Johannes-Gutenberg-Universität, Mainz)

During the Michelsberg culture, approximately around 4000 cal BC, a number of sites with sizes of up to 100 ha, with occasionally enormous fortifications, appeared in the Neuwied Basin (Urmitz) and the Rhine-Main confluence area (Schierstein, Kapellenberg, Glauberg). Most of these sites have been extensively destroyed before any modern archaeological investigation and thus remain very difficult to interpret. However, the Kapellenberg is well preserved, with ditches and banks still visible. It may thus serve as a blueprint for interpreting these Late Neolithic mega-sites. Current investigations at the Kapellenberg indicate large-scale interior occupation layers and a complicated architectural history of the defence system. However, it is entirely unclear whether these sites were occupied continuously or only for certain periods. There are also indications of sudden abandonment. Michelsberg “mega-sites” may thus represent a curious byway along the road to urbanism.

## Urban Scale and Dynamics in the Northern Fertile Crescent: 4000 BC-1000 AD

**Dan Lawrence** (Durham University, Department of Archaeology, Durham), **Tony J. Wilkinson** (Durham University, Department of Archaeology, Durham), **Graham Philip** (Durham University, Department of Archaeology, Durham), **Hannah Hunt** (Durham University, Department of Archaeology, Durham)

In the Middle East, most cities before about 1000 BC were of relatively modest size, usually much less than 400 hectares, with those in the rain-fed zone attaining a maximum of 120 ha. In contrast to the modest scale of these Bronze Age Middle Eastern “cities”, those of Mesoamerica and South Asia are manifestly vast, constituting what has become known as “low density agrarian-based urbanism” (Fletcher 2004, 2012). However, whereas low density urbanism appears less significant in the Middle East than South Asia, later cities were extremely extensive in area. Fletcher (2004) argues that the relationship between city size and longevity implies the existence of “an operational ceiling” such that the larger the size of the city, the shorter the lifespan. A similar generalization holds for the compact cities of northern Syria and Iraq as far south as early Islamic Samarra, located just beyond the limit of rain-fed cultivation. This paper draws on the database of the Fragile Crescent Project for the northern Levant and Upper Mesopotamia to test the above model of city size and duration. We then explore this relationship in relation to long-term population trends, food supply, social factors, the scale of the political economy and sustainability.

## The Beginning of Urbanisation in the Eastern Aegean: Economic Models and Archaeology

**Arne Windler** (Institute of Archaeological Science, Bochum)

Over the course of time, urban centres had and still have a dynamic development. An understanding of the process of urbanisation requires a consideration of economic forces. The failure of older approaches, such as Central Place theory, to explain this process led Paul Krugman to solve this problem in the 1990s with the development of the so-called “New Economic Geography”. This approach focuses on decreasing transportation costs and a highly specialised sector as the forces leading towards urbanisation. To connect the economic model to the archaeological record, both quantitative and qualitative approaches have to be taken into consideration. In a case study, this theory is applied to the Eastern Aegean Sea during the third Millennium B.C. The invention of scales, weights and a metrical standard reduced transaction costs drastically over a wide area. The development of specialised production and urbanisation is exemplified by Poliochni on Lemnos, where a centre for textile production emerged, as well as by the Lower City of Troy. Furthermore the regional settlement distribution could be successfully simulated using this economic theory. The NEG explains the rise of urban centres, and the theory can be used to compare early urbanisation in the Eastern Aegean and the Trypillia area, owing to changes in transportation facilities.

## Size doesn't Matter: Selimpaşa, Çatalca, Kanlıgeçit, Mikhalich and the Sudden Lifting of Complexity in Early Bronze Age Southeast Europe

**Volker Heyd** (Department of Archaeology & Anthropology, University of Bristol, Bristol), **Şengül Aydingün** (Kocaeli University, Kocaeli), **Emre Gündoğan** (Istanbul University, Istanbul)

While the first half of the third millennium BCE in most of South Eastern Europe is still characterised by comparatively medium levels of socio-economic complexity and the dominance of pastoral tribes of North Pontic origin, the period of 2500-2000 BCE sees an explosion in complexity and the inclusion within this contact zone of modern Turkish Thrace and southeastern Bulgaria in a wider network, now dominated by trade, colonies, urbanism and new forms of prestige/status expressions. The most puzzling element in this newly emerging picture are complex settlement sites consisting of strongly defended citadels of c.0,4ha and outer settlements of c.4ha. Best examples are the Selimpaşa Höyük at the Marmara Sea, and Kanlıgeçit and Mikhalich in inland Thrace. The site of İstanbul-Çatalca may also be implicated. Although thus moderate in size, they represent a form of central place that can only be regarded as ‘foreign’ in a regional environment dominated by tell settlements, wattle-and-daub architecture and hand-made dark burnished pottery. Kanlıgeçit in particular stands out as being a smaller copy of Troy IIc, even showing matching architectural details and ritual features. Does this speak in favour of the presence of Anatolian/eastern Aegean foreigners, trade emporia and even colonies in Europe, or the early transfer of an Anatolian urban model to Europe?

## Size and Complexity in Terramare Polities in the Po Plain: An Object/Pattern/Scenery-Oriented Approach to Detecting the Rule-Sets of “Landscapes of Power”

**Armando De Guio** (University of Padova, Dipartimento di Beni Culturali, Padova), **Claudio Balista** (Geoarcheologi Associati sas, Padova), **Andrea Betto** (University of Padova, Dipartimento di Beni Culturali, Padova), **Claudio Bovolato** (University of Padova, Dipartimento di Beni Culturali, Padova), **Luigi Magnini** (Freeland Archaeologist, Padova)

During its 30-year international cooperation, our AMPBV (Alto-Medio Polesine – Basso Veronese) project has been progressively focussing on possible “rule-sets” underlying the spatial/temporal (often “punctuated”)/functional setting



and morphogenetic path (“birth”, “death”, and possible “resurrection”) of complex “Landscape of Powers” (LoP) in the Bronze Age of the Po Plain. The basic idea that emerges is to try to exploit all sources of available evidence, starting from Remote Sensing (for instance, the use of OBIA object/ pattern/ scenery-oriented approaches) to discover possible practice/ action-based logics (rarely Bayesian, normally “fuzzy” and “risk and uncertainty”-driven), endowed with some explanatory potential for the integrated strategy responsible for the instantiation of pioneer Landscapes of Power. The last involves, inter alia, big jumps in the order of magnitude of settlement size and ranking range, along with major changes to the recurrent rank/size function- related spatial rules. This would involve a number of agrarian and sacred landscapes, in what could be referred to as a “hyper-coherent” code of practice in territorial decision-making. As an example, there appears to be a number of emerging rules in the spatial layout of key vectors and nodes (such as those referring to the unprecedented and extraordinary connectivity and hydraulic networks) in relation to centre/periphery and marginal “locations”. The “fractal rule-set” seems to work at different, nested layers of resolution and complexity from the intra- and inter-polity levels, when we compare the local “dendritic central place systems”, such as those operating in the Valli Grandi Veronesi of around Frattresina, to the all-encompassing “world system.”

### Bronze Age Urbanism: The Status of the Cornești Mega-Site

**Anthony Harding** (University of Exeter, Department of Archaeology, Exeter), **Bernhard Heeb** (Museum für Vor- und Frühgeschichte, Berlin), **Alexandru Szentmiklosi** (Museum of the Banat, Timisoara)

How “urban” were large enclosed sites in Bronze Age Europe? The question has been asked many times without any consensus being forthcoming. There are notable phases of enclosure in various parts of Europe at various stages of the Bronze Age. But such sites, while clearly the location of significant agglomerated settlement and home to hundreds of people, cannot incontrovertibly be described as ‘urban’. The rolling lowlands of the Banat have seen fieldwork in recent years on a number of large-scale Bronze Age enclosed sites. The most extensively excavated is Feudvar near Mošorin in Serbia, but by far the largest is Cornești in Romania, where four concentric earthwork rings enclose an area over 17km<sup>2</sup> in extent. Fieldwork since 2007, and in particular geophysical survey, is shedding light on the function of particular parts of the site interior, but the wider question of how such a site was built and organised remains open. This paper will consider aspects of the Cornești site in terms both of its internal features but also of its wider setting, and suggest ways in which its enormous scale might be understood within the dynamics of the start of the Late Bronze Age in central Europe and beyond.

### The Iron Age “Superoppidum” of Belsk, Ukraine

**Timothy Taylor** (University of Vienna, Institut für Urgeschichte und Historische Archäologie, Vienna), **Sergey Makhortykh** (Institute of Archaeology, National Academy of Sciences of Ukraine, Kiev), **James A. Johnson** (University of Pittsburgh, Pittsburgh)

The mid-fifth century Greek description of a wood-ramparted city in an ethnically-mixed zone of Scythia appears at first implausible, especially in terms of scale. Herodotus’s ‘Gelonius’ was inhabited by fair-haired, blue-eyed ex-Greek-trader Geloni, who had settled within the land of the dark, lice-eating Budini. Measuring 30 stadium lengths (30 x c. 190 m = 5.7 km) on each side (if constructed on a broadly rectangular plan, about 30 km<sup>2</sup> in area), it has been dismissed by many classicists as another Herodotean ‘lie’ or exaggeration. A plausible archaeological identification can nevertheless be sustained at the site of Belsk on the Vorskla tributary of the Dnieper, in the Poltava region of eastern Ukraine. Here, surviving 10 m high ramparts extended 12 km north–south and 7 km east–west to enclose perhaps 25% more area than Herodotus estimated. Defended or controlled by three *oppidum*-sized sub-fortresses, the site, under intermittent archaeological investigation for more than a century, was constructed in the sixth–fifth century BC, while the presence of 2,000 Scythian-period kurgan burial mounds indicates a substantial occupation over at least three centuries. This paper reports on archaeological and bio-anthropological research initiatives at Belsk and presents some working hypotheses concerning social function and economic role.

### Experiments in Urbanism? Reconsidering the Nature of Late Iron Age *Oppida* in Britain and France

**Tom Moore** (Durham University, Department of Archaeology, Durham), **Côme Ponroy** (Durham University, Department of Archaeology, Durham)

The appearance of mega-sites (traditionally known as ‘*oppida*’), often of unparalleled scale (e.g. Bibracte 200ha; Colchester: 2,000ha), in the Late Iron Age of Europe provides a unique dataset for exploring how complex social systems can articulate power in distinct and novel ways, in the absence of ‘towns’ in the Classical sense. However, the question of whether these can be described as ‘urban’ has overshadowed a deeper understanding of the development and role of such sites. By continuing to examine this issue almost wholly in relation to Roman urban development or against checklists devised for the Mediterranean world, studies have measured Iron Age societies against peculiarly Classical concepts of urbanism or isolated them from wider debate. Taking Late Iron Age France and Britain as our focus, and using evidence from our own field projects, this paper will demonstrate the complexity of the *oppidum* phenomenon. We shall argue that the

increasingly sophisticated understanding of the diverse forms taken by mega-sites and 'urbanism' elsewhere in the world (e.g. Cowgill 2004: Ann. Rev. of Anthropology), and the ways that these were used to articulate power, provide useful comparisons for re-situating Iron Age 'oppida' within more nuanced understandings of the emergence of large, complex societies without Classical urban forms.

### **Re-Assessing the *Oppida*: New Perspectives on Urbanisation Processes in the European Iron Age**

**Manuel Fernández-Götz** (University of Edinburgh School of History, Classics and Archaeology, Edinburgh)

For a long time, the origins and development of Late Iron Age *Oppida* were viewed from predominantly economic perspectives and as dependent on contacts with the Mediterranean world. However, advances in research in recent decades make it necessary to qualify and re-assess many of the traditional interpretations of the genesis and functions of these centres. This paper focuses on the political and religious role of the *Oppida*, questioning the assumption that they concentrated all relevant industrial and trading activities, and arguing that these centres represented a new 'technology of power' related to a more hierarchical and centralising ideology. Moreover, the early chronology of the great open agglomerations of the 3<sup>rd</sup> to 1<sup>st</sup> centuries BC shows that the concentration of the population and economic activities began some time before the foundation of the *Oppida*. Finally, it will show that the existence of places for cultic purposes and holding assemblies very often pre-dated the development of major settlements on the sites occupied by the *Oppida* - a phenomenon which has profound implications for our understanding of Iron Age urbanisation processes.

### **From the Neolithic to the Iron Age – Demography and Social Agglomeration: The Development of Centralized Control?**

**Johannes Müller** (University of Kiel, Institut für Ur- und Frühgeschichte, Kiel)

New research results on Late Hallstatt settlement patterns have been used to describe agglomerated central settlements such as the Heuneburg as "cities" or "sub-cities". A reconstruction of the general demographic development of Europe from ca. 6000–500 BC emphasizes, beside a general population increase, such agglomeration processes at different times. Three examples of centralization - even urbanization - processes, at Okolište, Trypillia mega-sites and Hallstatt, are described and linked to the question of social power and social control in prehistoric societies. In consequence, the Hallstatt development emerges as a structural phenomenon already observed in Neolithic, Chalcolithic and Bronze Age societies. As we are confronted with processes not necessarily known from historical or ethnographical records, a new term – 'social agglomeration-control' ( "aggl-control") – is introduced, which highlights prehistoric centralization processes as triggers of social control in non-literate societies.

## **POSTERS**

### **The Temple on the Trypillia Mega-Site of Nebelivka**

**Nataliia Burdo** (Institute of Archaeology NAS of Ukraine, Kyiv), **Mykhailo Videiko** (Institute of Archaeology NAS of Ukraine, Kyiv)

Investigated in 2012 at the Trypillia mega-site of Nebelivka, Kirovograd Domain, Ukraine, the remains of the construction with an area of c. 1,200 sq.m. (the so-called 'mega-structure') can be interpreted as the remains of a public building - a temple. The recently completed plan of the settlement according to geomagnetic survey shows that, on its territory, it was the only building of this size, which became the center of the complex plan, constructed at the highest point. These excavations gave us the possibility to reconstruct a two-storey building made of wood and clay surrounded by a galleried courtyard, five rooms on the second floor and raised family altars made of clay on the ground floor. Its construction required labour commensurate with the construction of several dozen ordinary houses. Its plan and some features of this structure find analogies in temples from the 5<sup>th</sup> – 4<sup>th</sup> millennia BC known from excavations in Anatolia and Mesopotamia.

### **Apulian (SE Italy) Mega-Sites of the Early Iron Age (VIII-VI cent. BCE)**

**Alessandro Vanzetti** (Sapienza University of Rome, Rome)

In Northern Apulia, some mega-sites emerged during the Early Iron Age, slightly later than the proto-urbanization of Etruria, Latium and Northern Italy. The 80-ha size of sites such as Ausculum and Ordona (VIII cent. BCE onwards) can be easily compared with other Italian proto-urban sites, but there is a jump in size to 500 ha at Arpi (VII cent. BCE onwards), which is enclosed by an earthen bank. These mega-sites have been neglected in the Italian debate on proto-urbanization, owing to a lack of fine-grained data and because of other non-standard proto-urban aspects in the social complexity of Apulia (e.g., cemeteries and the late adoption of writing). In order to understand the different models of (proto-)urbanism of Italy, it is relevant to consider all of these situations, which can be better understood by a comparative study of Southern Apulia in its broader Southern Italian context.

## England on the Edge: The Stable Isotope Evidence

**Sarah Mallet** (University of Oxford, Oxford)

For this paper, I will use stable isotope to compare the diets of early medieval England and its neighbouring regions (such as Scotland or the continent) to understand how much the collapse of the Roman Empire and the breakdown of the traditional foodways of antiquity affected food productions and human diets. Food is one of life's necessities: it can be argued that sudden changes in agriculture can have dramatic effects on the economy and can thus lead to the marginalisation of otherwise thriving provinces. By looking at human diets in a pan-European context following the collapse of the Roman Empire, it is hoped that different food productions patterns will become visible, which can then help explain why Britain turned from a fully integrated Roman province to a kingdom on the edge of the civilised world.



## T05S002 - STEADY STATE, FLORESCENCE AND BUST: ALTERNATIVE INSULAR MODEL FROM MALTA

**Organizers:** **Simon Stoddart** (Queen's University Belfast, Belfast), **Christopher Hunt** (Queen's University Belfast, Belfast), **Caroline Malone** (Queen's University Belfast, Belfast), **Anthony Pace** (Superintendence of Malta, Valletta), **Katya Stroud** (Heritage Malta, Valletta), **Nicholas Vella** (University of Malta, Msida)

Many models for the Neolithic propose a Boom and Bust scenario for demography and economy. The situation in Malta suggests a relatively stable model that sustained the famous monument building from c. 3600 BC to c. 2400 BC when the system does appear to change drastically. The FRAGSUS project supported by the European Research Council is bringing scientific (pollen, isotopes, geoarchaeology etc) and cultural interpretations together to explain on the one hand the sustained reproduction of society in a fragile environment and on the other the sudden change in that very same society at about 2400 BC. The papers will examine the environment, human health, human landscape, social organisation and heritage/museological preservation.

## ORAL PRESENTATIONS

### Introduction

**Caroline Malone** (Queen's University Belfast, Belfast), **Anthony Pace** (Superintendence of Malta, Valletta)

This session brings together a number of archaeological and palaeo-environmental approaches currently being tested to explore ideas of continuity and change in small islands. With its density and wealth of archaeology, Malta provides a good testing ground to understand how societies deal with change and unpredictability. Ancient Malta demonstrated remarkable resilience in the face of major resource constraints which might have led to abandonment and collapse in other contexts. We present models that demonstrate the cyclical process of initial boom and subsequent bust in Malta's prehistory, and speculate on what special socio-economic systems and ecological responses enabled populations to thrive, build monuments, develop remarkable arts, seek external contacts and ascertain continuity while responding to change. Prehistoric Malta shows how resource poor islands could create appropriate mechanisms and technologies to ensure a degree of efficient consumption and demographic stability over sustained periods of time. This would have required adaptive responses to periodical 'bad year economics' and environmental problems, but also a capitalization of successes in the long imperceptible realities of Mediterranean developments. This paper explores the wider implications of the lessons being learnt from prehistoric Malta that have application across much wider geographies than the central Mediterranean.

### Fragility and Sustainability in Islands

**Christopher Hunt** (Queen's University Belfast, Belfast), **Patrick J. Schembri** (University of Malta, Msida), **Anne M. Jones** (Queen's University Belfast, Belfast)

Islands are spatially separated from other landmasses and their area is restricted: the interaction of these two factors leads to many of the special characteristics of island biota and of island societies. Island biotas are filtered by distance and dispersal mechanisms, often with those species able to colonise expanding their niche space and thus evolving rapidly to exploit the particular conditions of the island environment. A restricted biota with a high degree of specialisation may be extremely vulnerable to environmental change. In societal terms, island isolation and spatial restriction throws into strong relief the population/resources balance and necessitates the deployment of rigorous and highly-developed adjustment strategies. Successful strategies can lead to long-term sustainability, but minor perturbations may be sufficient to trigger societal collapse. We argue that many of the spectacular features of the Maltese Neolithic are likely to be a reflection of adjustment strategies relating to the population-resources balance, and that disruption caused by droughts associated with the climatic event at 4.3 ka BP may have triggered societal collapse.

## **Fragile Margin or Island Arcadia? The Making of the Prehistoric Maltese Islandscape**

**Reuben Grima** (University of Malta, Msida), **Nicholas Vella** (University of Malta, Msida), **Gianmarco Alberti** (University of Malta, Msida)

Interpretations of small island societies have often been characterised by narratives of vulnerability, fragility, and restricted resources. Explanations for the Maltese Neolithic and the phenomenon of temple building have been dominated by the idea of a cultural florescence doomed to inevitable collapse. The intensive monumental activity has sometimes been read as a cause of, and sometimes as a response to, resource stress. An implicit danger in such interpretations is that of reading history backwards from the apparent collapse around 2400 BC. This paper re-examines the evidence of the cultural construction of the Maltese Neolithic islandscape from the islands' first colonization with the aim of tracing strategies to optimise resources and minimise the risks of a small island group. The exploitation of ecological niches, and their transformation over time into successful units of social organisation is examined. The implications of interdependence and cooperation in such a context are considered.

## **The Microlandscape of Prehistoric Malta**

**Sara Boyle** (Queen's University Belfast, Belfast), **Anthony Pace** (Superintendence of Malta, Valletta), **Simon Stoddart** (Queen's University Belfast, Belfast)

The Maltese Islands are well-known for their wealth of prehistoric monuments, yet the wider prehistoric landscape has remained poorly understood and disconnected from the monumental architecture. The first author's recent doctoral research has somewhat rectified this biased view of prehistory by exploring prehistoric settlement activity on the Maltese island of Gozo. A survey database put together by the first author from collections of the Cambridge Gozo project in the late 1980s and 1990s provided an opportunity to establish an understanding of prehistoric settlement activity at the micro-level using modern Geographic Information Systems (GIS) technology, and a series of exploratory GIS-driven spatial analysis procedures enabled the wider social and physical context of prehistoric settlement activity on the island to be explored. The results of this research show the transformative nature of Gozitan prehistoric settlement activity as a cycle of settlement activity was played out over the Neolithic and Temple Period phases and was repeated during the Bronze Age; a cycle that is likely to have been driven by the population dynamics of the island's prehistoric cultures, the increasing elaboration and domination of ritual or social elements, and the intimate relationship between the islanders and their small, fragile and restricted island home.

## **Maltese Temple Landscape Project**

**Timothy Darvill** (Bournemouth University, Bournemouth), **Fritz Lüth** (Deutsches Archäologisches Institut, Berlin), **John Gale** (Bournemouth University, Bournemouth)

The prehistoric temples located on the islands of Malta and Gozo in the heart of the Mediterranean are widely recognized as the earliest free standing buildings in the world and accordingly they have attracted the attention of generations of archaeologists, antiquarians and scholars. However, very little is known about their physical, environmental, social, and economic context, or their relationships with other contemporary features in the landscape. Investigations since 2010 by an international team of archaeologists from the UK, Germany, and Malta have begun to address these questions by focusing on the area around Skorba in the centre of Malta. This paper presents an overview of preliminary results from fieldwork that place the temple complexes into their physical and social landscapes. Research has included a geoarchaeological approach included magnetometry, magnetic susceptibility surveys, soil chemistry, test-pitting, and the targeted re-examination of earlier excavation trenches and soil heaps. Together these indicate an extensive area of activity around the temple site; the results will form the basis for determining a campaign of selective excavation in future years.

## **Lessons from the Stratigraphy of Tas-Silg**

**Alberto Cazzella** ("Sapienza" Università di Roma, Rome), **Giulia Recchia** (University of Foggia, Foggia)

Excavations 2003-2011 at Tas-Silg north have provided new evidence as regards different aspects of the Maltese Late Neolithic, ranging from the variability of megalithic buildings, to ceramic assemblages, bioarchaeological data and cultic practices. Late Neolithic deposits that were sealed by collapse layers have been found, which shed some light on the spatial organisation of the activities at the sanctuary. Furthermore, stratigraphic sequences have shown that collapse events of some megalithic features had already occurred at the end of the Late Neolithic. Following these events, the site continued to be occupied and there are good clues that the production of traditional Late Neolithic pottery endured over the earliest phase of the Bronze Age, that is, the phase characterised by Thermi Ware. These pieces of evidence give us material for reflection on the vexed question of the causes and dynamics of the end of Temple period in Malta. In this paper we will present, in the first place, the stratigraphic evidence from Tas-Silg north. Hypotheses on the pattern of use of the areas of the sanctuary will be proposed. Finally, we will discuss possible models of both social organisation and dynamic of fall of the Late Neolithic culture.

## **The Subsistence Basis for the Prehistoric Economy of Malta from Bioarchaeological Analyses at Tas Silg** **Girolamo Fiorentino** (University of Salento, Lecce), **Jacopo De Grossi Mazzorin** (University of Salento, Lecce)

In this paper we present the results of bioarchaeological analyses (archaeozoological and archaeobotanical macroremains) from the prehistoric temple of Tas Silg on Malta, from a diachronical perspective, found in the Late Neolithic (Tarxien Temple phase) to the Late Bronze Age (Late Borg in-Nadur phase) phases. The cereal and legume remains show variations in agricultural techniques in the various phases of occupation of the site, probably reflecting the response to climatic micro-variations testified also by variations in anthracological assemblage. The faunal remains show an economy based primarily on sheep farming, but which, over time, tends to decrease in percentage in favour of pig. In the earliest phases there has been an increased presence of goats which may have resulted in substantial alteration of the plant landscape. Of particular interest is the introduction of feral cats, probably from Sicily, for the control of rodents. The bioarchaeological analyses highlight variations in natural plant coverage and the resilience of the human groups in the rich variety of strategies adopted for exploiting the plant and animal resources in relation to micro-variations in the climate during this period of the Holocene.

## **Maltese Prehistoric Stone Tool Technology and Procurement Strategies**

**Clive Vella** (Brown University, Providence)

Rekindled interest in Malta's prehistoric material culture offers new insights into the archipelago's past. The ongoing analysis of stone tools from the Maltese Islands has now covered the Late Neolithic megalithic sites of Ras il-Pellegrin, Ta' Hagra, and Borg in-Nadur, as well as the multi-phased sites of Skorba and Tas-Silg. Skorba and Tas-Silg offer particularly interesting trends that allow the comparison of single period occupation to a broader view of Malta's prehistory in multi-phased sites. By focusing on stone tool technology processes, it appears that imported raw materials maintain an almost consistent manufacture process while the use of obsidian tapers off at the very beginning of the 'Temple Period'. The site of Tas-Silg, with its significant Bronze Age deposits, shows interesting patterns of stone tool technology in the post-Temple Period occupancy of the earlier megalithic centers. By not focusing on the falling obsidian presence in the Late Neolithic Malta, it is thought to be more useful to comparatively analyze the procurement strategies and mechanisms of imported flint and local chert. This comparison can give insights into the manner in which voyaging and trade fluctuated across Malta's rich prehistory.

## **Junctures and Conjunctions: The Rise of Early Urban Settlements in Malta**

**Anthony Pace** (Superintendence of Malta, Valletta), **Nathaniel Cutajar** (Superintendence of Cultural Heritage, Valletta)

Malta's late Bronze Age provides an opportunity to examine long-term growth as a precondition to the establishment of new polis-style realities. The Borg in-Nadur phase is marked by intensified land use and the spread of settlements on hill tops and promontories. Communities benefited from regional and long distance contacts as documented by Mycenaean pottery and a Cuneiform inscription in Malta, and by the presence of Maltese pottery in Sicily. Borg in-Nadur represents a significant break with the Late Neolithic and the ensuing Early Bronze Age. For the first time, we have large clustered settlements suggesting a proto-urban life style. This is confirmed by recent excavations at Borg in-Nadur, the Mdina/Rabat/Mtarfa area, the Cittadella and Nuffara. These patterns were transformed by westward migration from the eastern Mediterranean. The consolidation of Phoenician settlements by the eighth century BC benefited from the achievements of the Middle Bronze Age. By the seventh century a distinctly rural/urban divide was created. Key settlements, namely Mdina/Rabat and the Cittadella became sites of Phoenician urban settlements. Others, such as Borg in-Nadur, Bahrija, Nuffara, tal-Mejtin, Wardija ta' San Gorg, ta' Qali, survived as rural sites or were abandoned.

## **Prehistoric Tales for the General Public: Time for a Change**

**Katya Stroud** (Heritage Malta, Valletta)

The Interpretation Centre at Ġgantija Temples opened its doors to visitors in October 2013. Curators were spoilt for choice, with a few hundreds of artifacts which had never been seen by the general public, available for display. However, the development of the interpretation storylines and media to be included in this centre, took a slightly different turn. This paper will discuss the popular stories that the public hears about Malta's prehistory, how these reach our public, how some stories have endured through the years and how true these are to the archaeological record. Beyond virtual media, it is the museums, sites and visitor centres that provide the primary interface with the public. It is therefore here that Heritage Malta is developing a new approach to interpretation on the Maltese Islands, with the aim of creating enticing and exciting storylines that capture the audience's attention, without veering onto fiction. Some of the tools that are being borrowed from conventional storytelling and adapted to interpretation will also be discussed in this paper, with examples of how these are being put into practice at the Ġgantija Interpretation Centre.



## Discussion. Malta Seen in the Context of Island Societies in the European Neolithic

**Gabriel Cooney** (University College, Dublin)

Malta is a case study of distinctive ways of life and traditions created by working with the constraints and possibilities of island resources linked to what was available through wider maritime networks of connections. But of course Malta is only one such island Neolithic society among a number in the Mediterranean. Other notable examples include the Balearic Islands and at a larger scale Crete. Taking a broader geographical focus then it could be said that island life and connectivity with islands is one of the striking features of the Neolithic of Atlantic Europe. Britain and Ireland are just the largest examples of island societies which take us from the Channel Islands to Shetland, the latter sited as the most northerly expression of a classic Neolithic way of life. Taking Malta as a focus for comparison this paper poses the question of whether there are patterns in common in the establishment and development of Neolithic societies on islands. How critical is the question of the scale of the island? Is 'boom and bust' a recurring phenomenon? Can we identify recurring trends in the way which people created distinctive lifestyles, brought about and coped with change in different island landscapes?



## T05S003 - COMPARATIVE PERSPECTIVES ON EARLY URBANISM IN EUROPE AND BEYOND

**Organizers:** **Nadia Khalaf** (University of East Anglia, Norwich), **Kasper Jan Hanus** (Department of Archaeology, University of Sydney, Sydney), **Piotr Kalicki** (Institute of Archaeology of Jagiellonian University)

Recent advances of archaeology and other social sciences call into question traditional models of urbanism and its applicability to other urban centers than those of the Classical world and Late Middle Ages. However, despite the intensive research devoted to early urbanism in complex societies, there is still no scientific consensus on its origin, scope, character and development. Emerging models, for instance the low-density urbanism model, are usually applied to a limited number of complex societies, which usually developed within the same cultural area or, at best, in a similar environment. In our opinion such a situation calls for a comparative perspective on early urbanism to elucidate its nature, verify proposed models and consider their application outside the context in which they were formulated. We invite contributions which seek new perspectives on early urbanism – not only in terms of chronology, but also in terms of characteristics. We hope that this session will provide a forum for useful discussion that will consider urbanism from a range of comparative examples, particularly new models and interpretations of early urbanism, and their applications in European archaeology and beyond.

## ORAL PRESENTATIONS

### First Cities, First States - Central Places and Social Complexity in Early Iron Age Europe

**Manuel Fernández-Götz** (University of Edinburgh, Edinburgh)

Research projects conducted during the last years on so-called 'princely sites' like Heuneburg, Glauberg, Ipf, Mont Lassois or Bourges, we have to rethink our traditional understanding of Early Iron Age centralisation and urbanisation processes. The spectacular results serve to indicate that the political and demographic dimensions of Central European societies in the 6th and 5th centuries BC have to date been under- rather than overestimated. To quote only two of the most spectacular examples, recent research has shown that the entire settlement of the Heuneburg had an area of ca. 100 hectares during the mudbrick wall phase, with an estimated population of around 5,000 inhabitants, and in the case of Bourges the whole complex covered several hundred hectares in the 5th century BC. Monumental fortifications, profane, sacred and funerary architecture, artisanal quarters and Mediterranean imports all bear testimony to the manifold functions of the centres of power which developed between the end of the 7th and the 5th centuries BC in an area stretching from Bohemia to Central France.

### Comparing the Emergence of Towns in Uppland, Sweden

**Joakim Kjellberg** (Uppsala University, Uppsala)

In this presentation I will address questions relating to the emergence of towns and urbanism within the material of my PhD- project: Urban dynamics – materializing power, agency and identities within urban spaces 1100-1450. The general objective of the project is to develop archaeological theory concerned with urbanity and urbanism. The ambition is that this theory would have the capacity of taking an integrated perspective on material culture and social dynamics. Within the project I intend to discuss the complexity of social identities and investigate their involvement in the construction and development of the urban spaces through comparative analysis of material culture. The empirical base are the archaeological records from the three early and high medieval towns of Uppsala, Enköping and Sigtuna in eastern central Sweden.



## **Towards the Making of a City and Its Inhabitants – A Study of Urban Character and Urbanity as Life in Early Copenhagen**

**Hanna Dahlström** (Museum of Copenhagen, Copenhagen)

Recent research points out the complexity and heterogeneity within the field of early urbanism, also in the Late Medieval period. The development of a town is no longer seen as necessarily following a straight line. It is also seen that urban environments from the beginning have been socially complex places. These statements seem to be true for the capital of Copenhagen. With new source material from the metroline excavations, a phd-project is to start, which intends to investigate the early urban development of the city from the first settlement traces in the late Viking Age to the 13th century. The project, which will be presented in this paper, has its emphasis on investigating urban life forms and identities, the urban landscape and urban interfaces. By a closely integrating and contextualised approach to the analysis of archaeological contexts and their material culture, the aim is to extract detailed information about activities, land use and chronology to be used in the interpretation of the place called Copenhagen and the lives lived there. It may also serve as a valuable case study to the field of urbanism, contributing with examples of factors important to the making of a city and its inhabitants.

## **The Quest for the Constitution of Urbanism in Medieval Scandinavia – The Case of Kalmar, Sweden**

**Stefan Larsson** (Swedish National Heritage Board, Stockholm)

A town is a human construction. It is an artifact, an agglomeration of social space, in different scales and levels. Established theoretical frameworks have provided formal descriptions of 'the town' as a phenomenon. However, they are of limited help in explaining change, modifications or renegotiations in ways other than descriptive, or confirmative of, and subordinated to, a processual historicism. Our conception of towns has to a large extent been limited to understanding, presenting and reproducing them in terms of mere material and architectural facts and as the outcome of the one-sided, single-acting ecclesiastical or royal will-to-power. There is a need to (re)formulate an archaeological ontology more closely anchored in the materiality and spatiality of everyday life. In short, we need to shift our disciplinary perspective from an archaeology of towns to an archaeology of the urban, from practicing 'urban archaeology' to pursuing an 'archaeology of urbanism'. Based on an on-going interdisciplinary project in medieval Kalmar, this paper will address some of problems of continuity and discontinuity in relation to urban changes by discussing some aspects of pre-industrial urban forms in the context of social logic.

## **A Land between – Sicily's Place in Emergence of Medieval Hilltop Settlements**

**Scott Kirk** (University of New Mexico, Albuquerque)

Within the scope of urban development in 10th-11th Century Europe, Sicily stands as an enigma. Like elsewhere, settlements gradually began to position themselves upon defensible hilltops but, while this phenomenon is seen in both Islamic and Christian Europe, there is a dispute as to what it actually means. In Islamic Spain, hilltop fortifications begin as refuge sites for rural populations and only later become settlements while in Christian Europe hilltop settlements are seen in terms of *incastellamento* where a central fortification served as the residence of a feudal lord. In spite of this difference, the general settlement patterns are remarkably similar, leaving many scholars to question what broader circumstances lead to this widespread trend throughout Europe. Sicily, at this time, underwent a transition from Muslim to Christian rulers in the 11th Century and thus, its settlements show elements of both the Islamic refuge and Christian *incastellamento*. Sicily's place between these two worlds might serve to bridge the gap between the two developments and redefine *incastellamento*. This paper will look at the broader changes in Sicilian medieval settlement patterns and examine them within the context of the broader changes going on throughout Europe at the time.

## **Intercultural Trade and Urbanization in the EIA Mediterranean**

**Rune Frederiksen** (Danish Institute at Athens, Athens)

The growth of the city state cultures of the Etruscans, central Italians, Greeks and Phoenicians in the EIA and early Archaic periods, is to a great extent a story about urbanization and trade between neighboring city states. The long distance intercultural trade, however, was also of great significance for the economic and cultural boom in the region in the 8th and 7th centuries BC. Studying trade and linking certain archaeological artifacts to specific ethnic groups are most difficult endeavors, where the risk for over or misinterpretation are rather high. When we study a vast data material ranging from architecture, over pottery forms and functions, to the use of writing, we may, however, be able to grasp some tendencies of significance and with which we may base sound interpretation. This paper discusses to what extent we are able to determine if the 'foreign' input, economic as well as cultural, was secondary to 'indigenous' growth and cultural invention.

## **Methodological Issues for Interpreting and Comparing Mycenaean and Preclassic Maya Urbanism**

**Marcus Bajema** (Leiden University, Leiden)

The purpose of this paper is to discuss two cases of early urbanism that have often been seen as problematic. For both Mycenaean Greece and the Preclassic Maya the presence of urban forms has been questioned. Even if urbanism has been ac-

cepted, it has proven difficult to model it in these cases. Yet the weight of the accumulated evidence makes it hard to deny that urban features can be recognised in the respective archaeological records. Focusing on the four traits of agricultural surplus mobilisation, urban form, economic relations, and monumental art and architecture, I will explore the differences and similarities between the two cases. It will be suggested that the use of traits should not be seen as a 'shopping list' for defining urbanism, a critique often levelled at Gordon Childe's treatment of his 'urban revolution'. Instead they have the dual advantage of being adaptable both to general scales of complexity, and to considering the interrelations between traits in specific archaeological contexts, such as those of Mycenaean Greece and the Preclassic Maya.

### **The Cities of the Kingdom of Shan-Shan**

**Emilia Smagur** (Jagiellonian University, Cracow)

Between the third and the eighth century AD the oases concentrated on both edges of the Taklamakan Desert were organized into political organisms, which we can consider as city-states. Among them, from the mid-third to the mid-fifth centuries CE the kingdom of Shan-shan came to dominate the southern route of the Tarim. As in the case of other kingdoms, its economy could develop because of the practice of irrigation agriculture; it was based on cultivation, animal husbandry and crafts. Unlike the cities of Mediterranean World this area has not been systematically surveyed, and the archaeological data are still scattered. However, the model of urbanism can be studied, using the data gathered by Aurel Stein, supplemented by the results of contemporary projects which include Chinese excavations, the International Dunhuang Project, the study of satellite images and the literary evidence. The goal of this paper is to discuss the distinctive features of the urbanism of the oasis city-states in the Tarim Basin through case studies of archaeological sites in the kingdom of Shan-shan (Miran, Niya, Loulan and Endere among others). It will also examine the effectiveness of satellite imaging for the study of an area which is difficult of access.

### **The Greater Angkor - Low Density Urban Complex of NW Cambodia**

**Kasper Jan Hanus** (Department of Archaeology, The University of Sydney & Institute of Archaeology, Jagiellonian University, Cracow)

The spatial configuration of Angkor puzzled scholars since the second half of the 19th century. However for the next hundred years since first archaeological works at Angkor were conducted there were no methods for surveying site of that size. Technological advance of last twenty years that brings new airborne and spaceborne remote sensing methods, like AirSar or LiDAR, to look at this very site with accuracy never achieved. In my paper I shall present how this new methods changed our understanding of Angkor and proved that it was a biggest great density urban centre of the pre-industrial world.

### **Boundary Line Type (BLT) Mapping: Comparing Inhabitation of Urban Form**

**Benjamin N. Vis** (University of Leeds, Leeds)

Advances in archaeological mapping coverage and techniques are increasingly making us aware that the global city, which has precursors in compact towns, was not the only mode of early urbanism in various parts of the world. Southeast Asia, Mesoamerica and Sub-Saharan Africa all witnessed resilient urban traditions which have been described as 'low-density agro-urban landscapes'. It strikes us initially how radically distinct such kinds of urban form are from other present-day and early building practices. However, focusing on inevitable differences obscured understanding of these places as serving essentially similar purposes. All cities or urban landscapes are ultimately intensively developed places for human inhabitation. As detailed and comprehensive archaeological datasets on the layout of different kinds of urban form grow, there is a need to develop appropriate analyses beyond basic empirical measurements which enable us to understand all cities as inhabited built-up landscapes. I have devised Boundary Line Type (BLT) Mapping with a view to comparative apply it to the widest thinkable variety of urban form. It concerns a conceptual and analytical mapping practice which formalises the composition of materially present affordances to interact in space. This paper discusses its inferential potential using examples from ancient Maya Chunchucmil and historical Winchester.

### **Large, Dispersed, Agrarian Settlements in Prehistory: A New Settlement Category?**

**Kirrily White** (University of Sydney, Sydney)

Very large, agrarian settlements with dispersed occupation have always presented challenges to classification. Within progress models of human settlement behaviour, such sites as large Iron Age oppida (Europe and UK 2nd C BCE – 1st C CE), the Trypillia megasites (Ukraine 4th M BCE), Great Zimbabwe (13-15th C CE), and some Mississippi Mound sites (11th-14th C CE) are often characterized as urban, proto-urban, or pre-urban, but materially and spatially, these sites behaved differently to conventional urban settlements. Crucially, they seem to have preceded the appearance of urbanism in any specific region and to have formed within long sequences of stable, but smaller settlement building traditions. Their seemingly low occupation densities and the incorporation of industrial and agricultural space within the settlement boundaries, sug-

gests that these sites may be rare examples of settlement gigantism with unique trajectories of formation and demise. This current research builds on the work of Roland Fletcher (1995, 2013) in exploring the idea that these settlements actually constitute a discrete settlement category, and examines the characteristics of such a category through a cross-regional comparison of the settlements' material and spatial behaviour.

### **Low Density Urbanism and Pristine States: Comparative Perspectives on Early Urbanism**

**Piotr Kalicki** (Institute of Archaeology, Jagiellonian University, Cracow)

Recently many large, low-density urban sites were found in Southeast Asia (Angkor, Pagan), Maya lowlands (Tikal, Caracol) and Sri Lanka (Anuradhapura, Polonnaruwa). They were characterized by center with public architecture which was not separated by any clear limits from surrounding zone with intensive agriculture, often based on complex agricultural infrastructure, and extensive low-density residential areas. Despite the fact that all of low-density urban centers are located in areas of tropical or subtropical humid climate, it may be argued that they were also present in areas of dry or cool climate. To support this hypothesis some examples of urban centers, which may be interpreted as low-density from the Central Andes and other areas of non-humid climate will be presented. It may be suggested that socio-economic factors contributed more to the formation of low-density urban centers than climate. It seems that subsistence economy based on agriculture or even pastoralism, poorly developed exchange of staple goods, low institutionalization of political power and pronounced social hierarchy played important role in the development of low-density urbanism. Such urban centers had rather administrative and political functions than economic, and therefore they were unable to survive the collapse of political structure or religious ideology.

### **Entrepology. Reconsidering Maritime Networks Cities**

**Søren M. Sindbæk** (Aarhus University, Aarhus)

Coastal trading centres, or emporia, are often side-lined in the general history of urbanism, where city states and city empires continue to define the object of inquiry. Yet as research increasingly challenges time-honoured models of urban society, along with the paradigmatic examples which they referred to, archaeology is revealing coastal trading towns as a global and long-standing strain of urban development – a far cry from the transient “mushroom cities” or “coastal communities of a peculiar kind” dismissed by earlier generations of researchers. In the early Middle Ages emporia were arguably some of the most dynamic urban centres across many parts of the world. The temporal coincidence of noticeably similar developments in widely separate regions, and the occurrence of direct material links, raises the question if trans-cultural homologies in early medieval urbanism arose from direct global interdependence or as parallel patterns in response to broadly similar world conjunctures. This paper asks how an increasing body of archaeological evidence can be used to inform more appropriate models. It outlines a vision of urbanism guided by the theory of complex systems: as a cultural attractor through which the practices and routines in different societal trajectories converge on homologous patterns.

### **Theories on the Urban Past and Their Relevance to the Present**

**Rachael Lane** (University of Sydney, Sydney)

This paper looks at theoretical perspectives on the urban past and their relevance to the present using a case study of preindustrial, low-density settlements. The relevance of the archaeological past to the present as both a philosophical and conceptual issue is also addressed in this paper. Urban planners and scholars do not generally factor the archaeological past into decisions about the future of modern cities. In the case of low-density urbanism, planners and scholars tend to view this as a short-term phenomenon produced by the industrial revolution. Valuable insight from past to present may be gained from the long-term perspective of low-density settlement patterns, which can arguably be observed in every major socioeconomic system on the planet and has sustained through centuries and sometimes millennia. Archaeologists can observe outcomes of low-density cities with implications for the growth and decline of modern urban cities. To understand why the past is proclaimed to be relevant by both archaeologists and the public, and yet is not utilised, we need to assess issues both internal and external to archaeology. Processualism and postprocessualism operate within a ‘presentist’ paradigm contributing to the production of unusable knowledge for decision making and planning in modernity. Moreover, conditions of modernity – in theory – render the archaeological past as irrelevant.

### **POSTER**

#### **An Imperial Town in a Time of Transition – Life, Environment and Decline of Early Byzantine Caričin Grad**

**Constanze Röhl** (Römisch-Germanisches Zentralmuseum, Mainz), **Rainer Schreg** (Römisch-Germanisches Zentralmuseum, Mainz)

The remains of the early byzantine complex of Caričin Grad in south - eastern Serbia show the characteristics of a classical city, combined with ecclesiastical Christian architecture. Based on byzantine text sources, Caričin Grad is supposed to be

identical to Iustiniana Prima, a city newly founded by the emperor Justinian as the region's episcopal and administrative centre. With the period of occupation covering a mere 90 years, from circa 530-615 AD, and no further use of the site afterwards, Caričin Grad allows a rare archaeological 'snapshot' of a short period of very intensive use. Due to these circumstances, it offers the unique opportunity to analyse a city at the turn from late antiquity to the early Middle Ages. The economic, environmental and social history of the city is the main objective of a project started in 2014. Two topics will be addressed within this context. 'Households, consumption and every day life' and 'Resources for building and maintaining Caričin Grad'. Based on the perspective of human ecology, the project will establish new approaches and investigate the concept of the 'city' during periods of cultural transition. The poster will give an outline of concepts and first results.



## **T05S004 - OUTLANDS AND OUTLAND USE - IN THE PAST, THE PRESENT AND THE FUTURE**

**Organizers:** **Eva Svensson** (Environmental Science, Karlstad University, Karlstad), **Rainer Schreg** (Römisch-Germanisches Zentralmuseum, Mainz), **Margarita Fernández Mier** (Department of History, University of Leon, Leon)

Increased urban growth and depletion of rural areas, especially outlying or so called marginal areas, are major processes in European societies today. These processes have shaped our conception of outlying areas in the past. Outlying areas have therefore been of marginal importance in the archaeology of the past. But, when investigated, outlying areas have often turned out to be arenas for a variety of human strategies, and of great importance as harbors of resources and ecosystem services. Outlands were vital both for the subsistence of local communities and for mercantile networks on different levels in Europe as commodity producers. Today, people in outlying areas are fighting for a sustainable future, using the past as a major resource. In this session we focus on the dynamics of past outland use, the problems of today and the possibilities of the future. We would like to combine strategic papers dealing with applied archaeology as well as comparative case studies characterizing past outland ecosystems. Useful inspiration for papers in this session can be found in some of the challenges emphasized in the coming Horizon 2020 call; health and well-being, food-security, environment and resource efficiency and Europe in a changing world.

## **ORAL PRESENTATIONS**

### **Between Ideologies and Applied Archaeology – Archaeological Perspectives on Outland Regions**

**Rainer Schreg** (RGZM, Mainz)

Modern laggard regions are quite different in their historical backgrounds. Whereas some suffer from current economic, financial or political developments, other are seen as naturally disadvantaged, marginal and uncultivated landscapes. Based on examples taken from Germany this paper will reflect the role of archaeology for future developments. Four aspects have to be taken into mind: 1) Nature protection – learning about the environmental history as a precondition of natural protection and the problems of landscape 'conservation' facing the fact of permanent changes. 2) identity building – evaluating regional history in order to strengthen regional traditions and quality of life. 3) risk management – understanding the living conditions in marginal landscapes, which are often vulnerable against economic and climatic changes. 4) applied archaeology – drawing value from knowledge of past land use practices by their adaptation to modern conditions. Examples come rather from non-European landscapes, than from Germany, but there are some interesting starting points related to water economy. Modern strategies for the development of marginal landscapes seldom reflect on their history. Currently the establishment of new national parks in several German low mountain ranges provide interesting examples for the necessities of a historical reflection.

### **The Archaeology of the Commons**

**Karl-Johan Lindholm** (Dept. of Archaeology and Ancient history Uppsala University, Uppsala), **Emil Sandström** (Dept. of Urban & Rural development, Swedish Agricultural University, Uppsala), **Ann-Kristin Ekman** (Dept. of Urban & Rural development, Swedish Agricultural University, Uppsala)

Commons are resources that are maintained by principles of cooperative management or joint ownership. The literature is rich in descriptions of different forms of commons on the outlands of the later pre-industrial agrarian society of northern Sweden. The industrial era resulted in a noticeable shift in the use of the outlands and in the introduction of firmer property rights and rigid land boundaries. A large number of commons from the pre-industrial period has never been officially registered and can therefore partly be seen as 'hidden' resources. The objective of this paper is to discuss the concept of commons in relation to a variable archaeological record, mainly associated with the forested regions of Sweden. Is it possible to identify commons by an archaeological landscape approach and to what extent can a long-term perspective contribute to current theoretical discussions concerned with commons? This paper is a partial study within the Formas

research project 'Commons as Hidden Resources - Analysing the Shifting Roles of the Commons in Rural Development Processes'. The aim of the research project is to create a better understanding of past and present forms of cooperative natural resource management in the rural regions of northern Sweden – as well as insights into the future role of commons in the context of rural development.

### **Archaeology of Common-Lands. Environmental Resources and Conflicts in Ligurian Apennines (XVIII-XX c.)**

**Anna Maria Stagno** (Research Group on Cultural Heritage and Landscapes (GIPyPAC) of University of the Basque Country; Laboratory of Environmental Archaeology and History (LASA) of the Università degli Studi di Genova, Vitoria Gasteiz), **Vittorio Tigrino** (Dipartimento di Studi Umanistici, Università degli Studi del Piemonte Orientale "Amedeo Avogadro", Vercelli), **Giulia Beltrametti** (Laboratorio di Storia delle Alpi, Università della Svizzera Italiana, Mendrisio)

Common-lands indicate a category of goods (meadows, pastures, woods, etc.) used by a community through customary law. Their existence, the complexity of their different uses and the permanence of common rights on lands were crucial in shaping rural landscapes, so they are nowadays protected as natural heritage. In the archaeological background the juridical status of uplands (and its changes) is rarely studied, and the presence of common-lands is considered as a "datum", without going into depth on the material effects of social and jurisdictional common access rights. The paper aims to present first results of multidisciplinary researches on common-lands carried out on Ligurian Apennines (GE, Italy). Combining landscape archaeology and documentary research methods, the paper will show how the dynamic nature of commons and their transformations could be better investigated thanks to the archaeological visibility of conflicts. The result is a non-linear reconstruction of common lands management, where negotiation was a fundamental way to guarantee dynamic sustainability between social competition and equal & durable access to environmental resources. The material identification of this historical dynamicity constitutes an important key for planning present management of "marginal" spaces, in the perspective of sustainable development based on local actors and territorial cohesion.

### **An Applied Archaeology of the Commons in North-Western Spain: Creating Useful Knowledge for Social Processes?**

**Margarita Fernández Mier** (University of León, León), **Pablo Alonso González** (University of Cambridge, Cambridge), **Juan Antonio Quirós Castillo** (University of Basque Country, Biscay)

For thousands of years, the large pasture and forest lands of the northwest of the Iberian Peninsula have played a fundamental role for local communities. Although the outlands are usually considered marginal and peripheral, they have had many different uses fundamental for the socioeconomic reproduction of the people inhabiting these areas. Nowadays, much of the rural communities of northwest Iberia preserve a rich communal heritage. This heritage is in danger of disappearing under the new State policies aiming to suppress forms of common management and property and incorporate them under the public domain. Our paper suggests that an applied archaeology might be useful for the defense of these areas in many ways. First, understanding the history of the commons can enhance their legal and ethical legitimacy fundamental for their current defense by social actors. Second, by incorporating much needed archaeological knowledge on the traditional forms of sustainable land exploitation into spatial planning policies. In advocating an applied archaeology we move beyond a public archaeology as understood traditionally; instead of 'including' or 'letting the community know' about our findings, we work 'with' the community, embedding our research agenda in current sociopolitical concerns.

### **Different Forms of Resource Exploitation and Settlement in Mountainous Areas in Southern Norway during the Iron Age**

**Kathrine Stene** (University Museum of Bergen, University of Bergen, Bergen)

Results from archaeological and botanical investigations in mountainous and wooded areas in Southern Norway reveal an increasing activity at the beginning of the Iron Age. During the Iron Age a multifaceted utilisation took place in these landscapes such as hunting and trapping, extraction of iron, and livestock grazing. The exploitation is most often interpreted as seasonal occupation, seen in the context of the growing agrarian communities (farms) in low-lying areas. This led to increasing demand for pasture and fodder, and mountain products that could be exchanged or traded for goods they could not produce themselves. However, some of the material may indicate more permanent settlement. The archaeological material and pollen analytical data from different mountainous areas show a number of similarities, but also some major and interesting differences. The paper will focus on regional variations in the development and change of utilisation and settlement in mountainous landscapes in Western and eastern Norway during the Iron Age, mainly the period AD 1–600. Issues to discuss will be whether resource exploitations and occupation were expression of variable agrarian-economic strategies amongst societies through time and space and/or whether they are expression of socio-political factors.



## Early Tar Production and the Discovery of Swedish Uplands

**Andreas Hennius** (Uppsala County Museum, Uppsala)

About ten years ago a new type of funnel shaped feature was discovered at settlements sites from Roman Iron Age in the county Uppland in central eastern Sweden. After some investigation the features could be linked to a previous unknown production of tar. The features were placed close to the houses in the central arable flatlands and dated to 200-400 AD and were interpreted as a small scale production for the single households. At the same time we also excavated similar funnel shaped tar production features of a much larger scale in the forested northern part of the county. These features were dated to a later period of the Iron Age, 600 – 1000 AD. This transformation of production corresponds to other big scale changes in the middle of the Iron Age including new settlement patterns, new building technics, intensified and more specialized handicraft, increased shipping and a regional trade more concentrated on stock commodities. At the same time you can also see an expansion into areas that earlier only showed marginal use, such as the uplands. With tar production as the starting point I will try to shed some light over the Iron Age discovery of the uplands in central Sweden.

## Viking Wood Tar

**Jonas Svensson Hennius** (Societas Archaeologica Upsaliensis, Uppsala)

This paper deals with wood tar production in the central Swedish province Uppland during the first millennium CE. At the beginning of this period, small pits for wood tar production seem to have been a fairly common feature within settlements in the region. This small scale household production disappears from the settlements towards the 7th century. Instead a new type of large tar pits appears in the forests of northern Uppland. These were located far from settlements and have been estimated to produce around 100 times more tar than the previous type. The data support the idea of a transition from small scale household production wherever people lived to a large scale export production in areas where the raw material was abundant. The disappearance of household production in the settlements indicates societal and environmental changes far beyond the production areas. First millennium wood tar production in Uppland was discovered only about a decade ago and so far research into this outland utilization has been limited. The data will be presented and means, methods and theories necessary to go further will be discussed.

## Labour and Landscape

**Anders Biwall** (Swedish National Heritage Board, Stockholm), **Niclas Björck** (Swedish National Heritage Board, Stockholm), **Wivianne Bondesson** (Swedish National Heritage Board, Stockholm)

In some parts of Sweden remains from charcoalkilns are by far the most common cultural objects in the outlands. When the medieval ironmakers started to use blast furnaces the demand of charcoal increased enormously. Charcoal production became a very common task which affected not only the forests; also the surrounding society had to relate to it. The use of labour, both skilled and unskilled, need for transportation and as a source of income - the people in the surrounding areas was affected in many ways. We speak less of how the loss of the forest affected its neighbors, how did they react when large areas were stripped clean from trees. Is there a mind changing difference in living near a large forest compared to an open bushland? Our study discusses these issues departing from surveyed nearly 250 kilometers long transections through such landscapes. These surveys were made with such accuracy that very few remains from charcoal kilns could have been missed. We will present survey results, case studies and relate our results to historical sources which give a new perspective on how many kilns were operated in a forest. 14C- dating spreads between the 1300-1900 centuries.

## The Transformation of Settlements in Uplands of Bohemia in Late Middle Ages

**Tomas Klir** (Department of Archaeology, Charles University in Prague, Prague)

One of the substantial topics of the Late Middle Ages and Early Modern Period is the geographically diverse social-economic development characterised by a deepening of the differences between the zones of intensive and extensive agricultural production, between fertile lowlands and uplands especially. Since Early Modern Period, Bohemia has appeared as a significantly heterogeneous land comprised of areas differing not only in social-economic characteristics and in demographic behaviour but also in various development dynamics and in a different degree of integration in market exchange. In a large number of aspects, this regionally differentiated development has continued up to the present day. The paper presents an interdisciplinary research project currently running and exploring the late medieval origin of this European processes. The archaeological implementation of the project lies in a research on changes and continuity of the settlement structures, land use strategies, peasant economy, non-agrarian production and on the phenomenon of the rural settlement abandonment in uplands as well.

## With Something New from the Forest...

**Eva Svensson** (Karlstad University, Karlstad)

Landscapes of outland use have, in most cases, been objects of societal marginalisation processes in modern times. Quite often these landscapes are considered peripheral, and are often objects of extraction economy "exporting" natural re-



sources and offering tourist attractions. Often the state of periphery is presumed to have characterised the areas also in historical times. Often these preconceived notions have proved wrong. From a number of studies of agrarian settlements and land use, c. 500 AD – 1700 AD, in Scandinavian rough forest and mountain areas, a general pattern of using the outlying lands for production of commodities for the market achieving considerable wealth has appeared. Similar patterns are emerging also from other parts of Europe. For local communities in outland use landscapes struggling for survival in the future, the discoveries of a dynamic past is of importance as source for community pride and empowerment. The past should therefore be considered a resource for shaping the future. Not least for creating innovative economies replacing extraction economy.

### **The Rise and Fall Scotland's Uplands: Developing Sustainable Approaches from the Past**

**Gavin MacGregor** (Northlight Heritage, Glasgow), **Dave Sneddon** (Northlight Heritage, Glasgow)

We will explore the changing nature and perception of outlands in Scotland. These outlands are largely upland in character and have a range of archaeological evidence relating to earlier phases of expansion and retreat of settlement in prehistoric and Medieval periods. We will briefly review the character of archaeological evidence and how at different times these outlands may have been part of dynamic systems, such as forms of transhumance. We will reflect on how a better understanding of these remains, as part of integrated landscape research could contribute to developing new tools and solutions to societal challenges in a changing world.

### **The Exploitation of Outlands in the Southeast of the Iberian Peninsula during the Low Middle Ages: The Archaeological Traces of a Process of Change**

**Jorge A. Eiroa Rodríguez** (University of Murcia, Murcia)

After the breakthrough in the conquest of al-Andalus in the thirteenth century, a transformation of the social organization of the space, and a very important change in productive activities, took place. This modification of the relationship between man and the environment happened both in the territories that went on to be administered by the Castilians and Aragonese conquerors and in the places that remained in the hands of Muslims as part of the peripheral territory of the Nasride kingdom of Granada. On both sides of the frontier, the exploitation of marginal spaces was gradually acquiring a crucial importance throughout the final centuries of the Middle Ages. Although there are no similarities between the aggressive transformation of the agricultural systems of the Christian conquerors and the changes in the production strategies of the Muslims who populated rural areas in the extreme west of the Nasride kingdom, it is possible to define a common rediscovery of outlands. In this paper we will analyze the process through the study of specific cases of the South-eastern Peninsula from the twelfth to the fifteenth century.

### **Medieval Life and Work as a Strategy for the Future**

**Gert Magnusson** (Swedish National Heritage Board, Stockholm)

My paper will show how archaeological artifacts and constructions are used to reconstruct life, knowledge and work at Lapphyttan, a medieval industrial site, and how this become a strategy for the future of Bergslagen the central mining district in Sweden. After 800 years as an important industrial region and the base for economic development of Sweden, there was a massive close down of mines and steel plants in the 1980s. A lot of miners and steelworkers lost their jobs. Now the long industrial history became a strategy for the future of the region. Such strategies have been created in several industrial regions in Europe, where the steel plants and mines have closed down like Emscher Park in Germany. The introduction of industrialized mining has a crucial bearing on our understanding of medieval Scandinavian history and the modernization of Sweden. Agriculture, mining, metal production and forestry created a certain industrial landscape, today filled with ancient monuments and still visible in the present landscape. Archaeological investigations at Lapphyttan showed that a sophisticated industrial facility had already existed in the mid-14th century. A reconstruction of Lapphyttan has been built up for experiments to understand the knowledge of the medieval ironworkers.



### **T05S005 - TIMES OF COLLAPSES IN EASTERN AND CENTRAL EUROPE BASING ON DATA OF ARCHAEOLOGY AND ANTHROPOLOGY**

**Organizers:** **Alexandr N. Khokhlov** (Institute of Archaeology, Moscow), **Maria B. Mednikova** (Institute of Archaeology, Moscow), **Gintautas Zabiela** (Klaipeda University, Klaipeda)

There were incidences of collapses that caused changes in historical development of Eastern and Central Europe. Archaeological record could serve as an objective source of information, independent of written records, about important events and human tragedies of the past. Our session is centered on multidisciplinary consideration of two key points of such global changes. The first one concerns archaeological reconstruction of consequences of the so-called Mongol invasion of

the 13th century based on excavations from modern Russia and Ukraine. The invaders from Central Asia burnt Old Russian cities, destroyed preliminary political connections and transformed the development of these lands for centuries. Archaeological data provides evidence of violent collapses of rich medieval cities. For example, we are going to examine the extermination of the entire city of Yaroslavl based on data from wide-scale archaeological, archaeozoological and anthropological studies. The second point of the session deals with archaeological evidence of the Napoleon campaign (1812-1813). New field studies on the site of Borodino battle between the French and the Russian troops reveal modern and original techniques for reconstruction of unknown details. Extensive investigations of mass graves in Lithuania and former Eastern Prussia draw a more complete picture of last stage of the Russian campaign of the Great Army.

## ORAL PRESENTATIONS

### **Eclipses, Comets and Craters, Raining Fire, Justinian's Plague, the Hagia Sophia and the Ravenna Mosaics. The Comet of 536**

**Ruth Dwyer** (Independent scholar, Toronto)

As the Emperor Justinian was building the Hagia Sophia in Constantinople (532-537), a series of spectacularly dramatic climate and celestial events occurred. These were not just ordinary pestilence and earthquakes, these were biblical in their enormity. In the midst of construction, in the year 536, the earth was rocked with terrible "explosions and earthquakes." Fire and stones "rained" from heaven, and a dry fog, so dense and so thick that a "weak sun" was visible for only 2 hours per day, hung in the air for more than three years. The air temperature dropped precipitously. Snow was reported in August. Eclipses occurred, which had been predicted. Famines and plague took the lives of 40% of Europe's population. Scholars have been debating the source for the earthquakes and the thick dry fog. The mosaics of Ravenna tell us the truth: the earth had a very close encounter with a comet. And the walls of the Hagia Sophia display the eclipses.

### **The Death of a Mediaeval Russian City: C13th Yaroslavl Invaded by Steppe Conquerors**

**Asya Engovatova** (Institute of Archaeology, Moscow)

Digs in central Yaroslavl by the Institute of Archaeology unexpectedly confirm medieval accounts of the city's ransack by steppe invaders in 1238 AD – which list the city among those rased by Mongolian warlord Batu-Khan, although without details. Excavations during 2005-2012 unearthed time-layers from the early C13th – showing evidence of conflagration, with many burnt buildings. Nine impromptu mass graves were discovered – Yaroslavl's dead were interred in burnt-out basements, workshops, and even a drinking-well. Detailed analysis of the stratigraphy, burials, household and ceramic objects, show the burials are concurrent with the pillage of Yaroslavl by Khan Batu's forces in February of 1238. Forensic analysis reveals most of the skeletons show signs of fresh fatal injuries – wounds from hacking or stabbing, perforations consistent with arrow-head impact, and wounds from blunt instruments. The remains of over 400 victims were examined in the study. The hurried sanitary burials also contained the remains of whole farmyard animals, as well as eight horses. The way the many victims died, and the location of the burials within Yaroslavl's Kremlin illustrate the ferocity of Mongolian attacks – which correspond to the scorched earth policy described in medieval chronicle accounts of Mongol territorial aggression.

### **Counting Lethal Traumas: Reconstructing the Ways of Murdering People from 13<sup>th</sup> Cent. Yaroslavl City by the Study of Human Remains**

**Maria Dobrovolskaya** (Institute of Archaeology of Russian Academy of Sciences, Moscow), **Irina Reshetova** (Institute of Archaeology, Moscow)

Yaroslavl city was founded in the IXth century on the right beach of the Volga River and played the important role for the Medieval Rus' history. Rescue archaeological excavations of the city center were carried by the Institute of archaeology of RAS. Complex research of anthropological materials let to reconstruct the life style of the inhabitants as well as circumstance of the invasion of 1238. The mass graves in the pits and wells were revealed during the excavations. The skeletons from these burials have a lot of traces of different types of the traumatic injuries. High percentage of the injuries was determined for the cranial and facial bones. Many injuries are incompatible with life and probably became the cause of their death. There were described localization and way of applying. The most frequent traumas are: from the blow of the blunt instrument with limited surface, from chopping and cutting weapon. Three cases of the decapitation described too. Damages were discovered on the skulls of men as well as women and children (including infants). The abundance of injuries, mechanisms of their application may be indicative of a deliberate mass murder of all the inhabitants of the city.

### **Historical Cities of Red Ruthenia in the Era of Mongol Invasions**

**Monika Kaminska** (Institute of Archaeology, Jagiellonian University, Crakow)

Investigating any archeological evidence of nomadic attacks on fortified settlements is a relatively difficult task, since the several types of traces of those short-time actions are not permanent in archaeological strata. This paper focuses on the

traces of Mongol invasions of the cities of western Rus' in the 13 and 14th century. The study on the topic is based on both the historical and archaeological sources. A common Mongol practice in the phase of conquering in the 13th century was to destroy (or to make the local rulers destroy) the city walls. This practice was noted in, for example, the Volga Bulgaria sites (Bolgar). In some cases we can assume that the analogical situation occurred in south western Rus' (in cities such as Lenkivci-Chernivci). There is a group of cities in Old Rus' which according to archaeological data were never rebuilt after the Mongol invasion in 1237-1241. In Red Ruthenia we have Plisnes'ko, Cherven and Volhynia, as well as many others. Other cities became open settlements or monastic centers, and some others still exist in the present day. The aim of this paper is to map and analyze the historical settlements in western Rus' according to the current knowledge of their fate after the age of the Mongol attacks.

### **Archaeological Researches of the Battle of Kulikovo**

**Oleg Dvurechenskii** (State Historical Museum, Moscow)

Exploratory works on the site of the Donskoe Srazhenije (Battle of Kulikovo of year 1380) were conducted by Military History detachment of State Historical Museum since year 2002. Additionally, small finds were mapped. They were situated along the NE-SW line from the village of Monastyrshchina to the village of Khvorostyanka. This area matched the zone that S. D. Nechayev outlined as place of aggregation of weapon items collected by local peasants. This place was the most extended flat area of Kulikovo Field. According to specialists in the Middle Ages, from the military and tactical point of view it was thus the most appropriate for a field battle of the scale typical for the end of the 14th century. In addition to the finds that were earlier found on Kulikovo Field or originated from there, 146 relics were found. Among them there are 19 arrowhead fragments; a batch of spear-heads of spears, both intact and as fragments of armor plates; a piece of edging of ringed armor and chain rings; a cloth pin; buckles and flints; several fragments of battle axes, from blade and butt parts; saber strips; cloth patches; camp equipment.

### **Political and Climatic Collapses of 17<sup>th</sup> cent. Russia in Mirror of Bioarchaeology**

**Maria B. Mednikova** (Institute of Archaeology, Moscow)

The "Time of Troubles" was the period of civil war in Russia started by the dynastic crisis following the death of Ivan IV, "the Terrible" in 1584, and complicated by cooling of climate and starvation of urban population in the beginning of 17th century. Bioarchaeological approach gives independent evidence for reconstruction of life conditions of people. The examination of skeletal remains in the urban parish cemetery of Yaroslavl by methods of palaeodemography and palaeopathology differentiates between samples from the 16th and 17th centuries. Typical features for the 17th-century group were the numerical predominance of men, the highest mortality rate for infants and the absence of persons aged over 50. It was established that the main cause of infantile death was scurvy (Moller-Barlow disease), which assumed epidemic proportions. In the 17th-century sample cases of congenital bacterial infections (syphilis) were described, as well higher levels of traumas in adults. The trends can be considered in the context of the political circumstances and the colder climate. Scurvy was a disease common to Roman Legionaries and to the Crusaders, and appears during periods of warfare and instability – often when these conditions coincide with a period of climatic cooling. Supported by grant RHSF 12-31-01042.

### **Ritual Use of Austrian Cave Sanctuaries throughout the Ages**

**Alf Krauliz** (Prehistory Dept. of CINDIS, Center of Interdisciplinary Studies, Vienna), **Henry Dosedla** (Prehistory Dept. of CINDIS, Center of Interdisciplinary Studies, Vienna)

Regarding the historical landscape of Austria there are several cases of caves and rock shelters which were used in various ways profane as well as ritual from prehistoric periods until medieval centuries. As a striking fact within the same landscape there is an abundance of artificial subterranean caves and tunnel systems all sharing similar features which gave rise to a number of questions and hypotheses concerning their possible origin or purpose since earliest stages of archaeological research in these regions. Since the recent discovery and investigation of more sites of that kind evidence could be achieved that the great number of these artificial cavities was owed to a distinct ritual use and the consequent necessity of creating some convenient substitute in places which due to geological conditions apparently are lacking any natural caves or rock shelters.

### **The Break of an Era: The Beginning of Germanic Settlement in Bohemia and Celtic Heritage**

**Zdenek Benes** (Charles University, Prague)

The twilight of celtic occupancy in Bohemia is traditionally connected with an invasion of early germanic groups of so-called Großmstedt Culture from Thuringia and Saxony-Anhalt in present Germany. This event is supposed to accelerate in 2nd half of 1st century BC and culminated with an introduction of a completely new cultural appearance in almost whole Bohemian Basin. At least at the time of Kingdom of Maroboduus (9/6 BC – 18 AD) there are certain traces in material culture that remind of older celtic traditions. Does that mean, that the Celts were not gone at whole or is it „just“ some reminiscence or sign of trade with Noricum Kingdom in Middle Danube Region?

## Reconstruction of the Borodino Battle Basing on the Archaeological Data

**Mikhail Gonyanyi** (State Historical Museum, Moscow), **Oleg Dvurechenskii** (Historical Museum, Moscow)

The Great Borodino battle beginning from the 19th century became the subject of the scientific research. Numerous studies dedicated to the history of war and its historiography were published. They generalized the Russian and international experience of studying the phenomenon and our understanding of the event. But just recently Borodino battlefield has become the object of study from the point of view of archaeology. In 2009 the archaeological investigations on the Borodino battlefield is carried out with the participation of State Historical Museum. The works are developing in three main directions. First of all it is field survey on the battlefield territory, which includes the excavations of the Raevsky Redoubt; geophysical works aimed at the search the collective massgraves and outlining the defense constructions. The third trend is a rescue scientific investigations of earlier archaeological sites. During the 9 field seasons 97,7 ha was discovered. The multidisciplinary archaeological study of Borodino field discovered new details of event, unknown from written sources. This is first experience of large-scale works on the battlefields of Great Napoleonic War in Russian archaeological science.

## Bioarchaeological Evidence of Borodino Battle (1812)

**Boris Yanishevsky** (Institute of Archaeology, Moscow),

**Tatyana Shvedchikova** (Institute of Archaeology, Moscow)

Borodino battlefield which is located in the upper reaches of the Moscow river (in the documents of that times the Borodino Battle is also called the “Battle of the Moskva River”), 115 km to the west of Moscow, 15 km from the town of Mozhaisk, became famous after the horrific battle occurred on September 7th, 1812 between Great Napoleon Army and Russian Army. During this event about 100,000 people from the both sides were killed. Archaeological and anthropological evidences of French army retreat we can find on the territories of modern Lithuania, Austria and former Königsberg (Kaliningrad) city in big mass graves of Napoleon’s soldiers. But still undiscovered victims are on the Borodino battlefield. During the salvage excavations and field seasons of 2010-2012 more than 5 thousand square meters were investigated. Materials related to the Borodino battle were found throughout the palace and park ensemble. Anthropological remains which could be attributed to Napoleon’s army are also revealed. Over 120 artifacts including elements of clothing, horse equipment, weapons, buttons were found. 9th, 30th, 85 and 106th line infantry could be recognized as participants of Russian Campaign. Buttons of 20th regiment which hasn’t been involved in this war were found. Collective burials on the Borodino battlefield could be defined as sanitary.

## Archaeological Evidences of Napoleon Campaign in Lithuania

**Gintautas Zabiela** (Klaipeda University, Klaipeda)

The march of French emperor Napoleon Grand Armée to Moscow and retreating to East Prussia across the territory of present Lithuania took part in 12th June – 10th December 1812. Except the historical data this march left the archaeological sites. The mains of them were the defensive trenches (not investigated separately) and mass graves. All these graves were arranged in cold winter of 1812–1813, where some ten thousands of soldiers were dead in time of returning from Russia. The mass graves were known from several places, but only the mass grave in Vilnius was excavated almost totally. These excavations were made in two times in 2002 under the leading of archaeologist Albinas Kuncevičius. In territory of 600 square meters were found at least 3269 people. The total amount of grave goods is over 4600 finds. The largest group of them are metal uniform buttons. Other finds are different clothing elements, personal items and coins. In time of excavations of Napoleonic soldiers mass grave in Vilnius the huge anthropological material were collected. The main scientific goal of these excavations was the comparison between historical and archaeological sources.

## Mass Graves in Königsberg: The Period of the Napoleonic Wars

**Alexandr N. Khokhlov** (Institute of Archaeology, Moscow)

In 2006, in the Kaliningrad (former Königsberg), Sambia’s expedition IA RAN discovered and investigated 12 group burials of soldiers and officers of Napoleon’s Grande Armée. The mass graves were on a rampart between the Steindamm city-gate and the bastion adjacent to it. The burials were in flat grave pits measuring between 3 and 5 m<sup>2</sup> (near 150 or more individuals). On the floor of some of the pits burials were found which contained wooden coffins. The people buried in those were probably individuals of special status — they could have been high-ranking officers or generals. The excavations brought to light a total near 590 – 800 deceased. The fact that most of the deceased had belonged to the Grande Armée could be assumed on the basis of the grave goods. The most useful sources of information were the buttons from military uniforms bearing depictions specific to certain kinds of troops, regiments or battalions, which made it possible to determine the country from which the deceased came (soldiers and officers from French regiments of Guards, Cavalry, Jaegers, infantry, artillery-men had been buried; from the Westphalian, Swiss, Holland and Italian troops. A unique find was a well-preserved shako from Infantry Regiment of the Kingdom of Westphalia. Military buckles were found, rifle flints, bullets,

Prussian, Russian and French coins and also more personal items. Finds of coins minted in 1811 and 1812 confirmed the date of the burials - namely the autumn and winter of 1812/13.

## POSTERS

### Archaeological Investigation of Field Artillery Fortification “General’s Raevsky Redoubt”

**Dmitry Soloviev** (State Historical Museum, Moscow)

On 26th of August (September, the 7th) 1812 one of the most bloody event of 19th century has happened in Russia. It was the Borodino battle or as it called Battle for Moscow. The most dramatic moment of the battle was fight for artillery fortification which is known in Russian historiography as Redoubt of General Raevskyi. Until recent times two opposite opinions existed regarding the fortification type and it’s readiness for the battle. The plan of redoubt didn’t exist. In 2006 archaeological investigations were settled to decide these questions. During field seasons of 2007-2012 the main configuration and building phases of fortification were defined. More than 3000 artefacts were found. Among them are numerous artillery and gun munition, firearms and cold arms details, uniform parts such as buttons of different French regiments, shako metal plates. The most prominent find is the gold badge of the Order Reunion (Ordre de la Réunion). It could belong to French General Auguste Jean-Gabriel de Caulaincourt who died in final attack of the Raevsky’s Redoubt.

### Battle Actions in Tarutino Campaign of 1812 According to the Archaeological Data

**Mikhail Gonyanyi** (State Historical Museum, Moscow)

One of the well known battlefields of Russian Campaign of Napoleon was the Tarutino battlefield located on the south-west outskirts of Moscow. It is known as the first battle resumed from 3rd till 18th October 1812, when the advantage was on the Russian side. The main aim of the study conducted by State Historical Museum during the 5 last years was to detect the battle areas and armies disposition on the total area of 140 sq. meters. Historical sources also play an important role in the process of reconstruction of Tarutino battle. Use of metal detectors limited borders of battle area, localized places, where bullets, shot and amunition, details of firearms and cold arms were concentrated. Places of conflict and persecution in forest were detected by archaeological study. Numbered buttons indicate participation in confrontation of 11th and 12th chasseur, 10th Hussar Polish, 1st joined Uhlan Prussian regiments.



## T05S006 - DEAD ENDS, FUNERARY FLOPS AND MONUMENTAL FAILURES: ARCHAEOLOGIES OF MORTUARY DISASTERS

**Organizers:** **Howard Williams** (University of Chester, Chester), **Ruth Nugent** (University of Chester, Chester), **Estella Weiss-Krejci** (OREA Institute for Oriental and European Archaeology, Austrian Academy of Sciences, Vienna)

Sir Thomas Browne, the seventeenth-century English antiquary, regarded all memorials as inevitable failures; all memory eventually becomes oblivion. European archaeologists today might disagree, for even short-lived and materially transient mortuary performances might have powerful and lasting social efficacies, mortuary traditions can endure for centuries, and the biographies of bodies, graves, cemeteries and mortuary monuments can be charted over millennia. Yet burial archaeologists persist in assuming their data represents the results of designed, planned, competently executed, and hence completed, closed and ‘successful’ ritual processes. Mortuary archaeology rarely engages with the inherently contingent, expedient, accidental, improvised, contested and open-ended natures of funerals and their material traces in the past and the present. In particular, few studies have considered how these dimensions can often lead to all manner of incomplete, failed and interrupted mortuary practices resulting from a range of human and natural agencies colliding within the mortuary arena. Moving beyond anecdotal instances, this session seeks to theorize different dimensions to funerary failures using archaeological evidence. Interpreting bungled burials and collapsed catacombs, curtailed cremations and half-built mausolea, short-lived cemeteries and flawed funerary art, practice-pieces and misspelled epitaphs, the session explores what we can learn about past societies from what went wrong.

## ORAL PRESENTATIONS

### “Curst Be He that Moves My Bones”. Rest in Peace or Rest in Pieces?

**Catriona Gibson** (University of Wales, Cardiff)

The ethics that governed Shakespeare’s epithet and his desire to remain untouched in his grave were not universally adhered to in the past. Yet identifying the complex, messy and protracted elements that may have constituted funerary behaviour has not always been easy as old excavation accounts often lack the fine stratigraphic and contextual detail required to untangle such intriguing narratives. The recent profusion of developer-funded excavations, coupled with the



increased use of AMS dating, have provided rich data sets that can help illuminate numerous occasions when, after death, the body was not simply buried complete or left to rest in peace passively, but was subject to various different encounters often spanning extensive time-frames. Sometimes these were deliberate and sometimes these were accidental or bodged affairs but all attest to the fact that formal burial was often only one part of a long and open-ended process. This paper will consider a number of recent case-studies from British prehistory where examples of body manipulation, the creation of composite humans, skull swapping and removal or display of parts of bodies indicate that curation, revisiting and generally fiddling with human remains in the past occurred surprisingly frequently, and for a myriad of tantalising reasons.

### **Recipes for Success or Failure? Considering Multiple Outcomes for Social Action in European Iron Age Mortuary Practices**

**James A. Johnson** (University of Pittsburgh, Pittsburgh)

Mortuary studies in archaeology often present the burial rite and funerary ‘assemblage’ as an unproblematic end result, the successful combination of intentional social actions that form entrenched materialized social and political totalities. Furthermore, the conventional understanding of mortuary assemblages as *a priori* and *a posteriori* indicate that this end result is knowable through empirical and historical observation. In this paper, I interrogate the conventional understandings of mortuary practices and assemblages as recipes for successful social action. Through a close examination of how mortuary data is assembled and presented, and how archaeological interpretations, such as gender practices, are highly contingent, relational works susceptible to different outcomes, of success and/or failure. I use my research into gender configurations in the mortuary practices of Early Iron Age south-central Ukraine as the foundation for my arguments. I present my analysis of burial patterns, utilizing data collected from 85 graves in 67 burial mounds. Through a comparison of my research and similar studies of gender configurations in Iron Age Europe, I highlight the potential if not potency of multiple possibilities, of considering failure along with success, and the unintentional and intentional outcomes of mortuary practices.

### **“Intoxicating” Death: Micro-Politics of Death at Bronze Age Cemetery of Kajászó, Hungary**

**Tamas Polanyi** (Northwestern University, Evanston)

Mortuary practice has been marginalized in anthropological accounts of political change. Characterized as a powerful regulating and controlling medium, it is often considered to expose social organization, where liturgy is seen as a normative, static portrayal of cultural rules and grammars, status, and broad cultural patterns. In this paper, I argue that such interpretation of funerary rituals results from an overreliance on a political economy perspective which examines social relations based on unequal access to wealth and power. Critical to this approach is that political economy addresses relations of power within prevailing institutions. Ritual is rendered as a context where ideology, as a source of political power, becomes materialized, and ritual becomes a mere conventionalizing medium of political power. Political economy approaches to ritual often fail to recognize the interaction and contradictions between agents and social norms. Based on my research at the Bronze Age cemetery of Kajászó, I offer an alternative theoretical and methodological framework using recent work on ritual economy that shifts the focus of interpretation from control to negotiation. This reorients attention from sustained control over resources to situational capacity of agents to manipulate culturally embedded social rules. Mortuary ritual then is a context where all community members participate in constructing meaning and shaping interpretation.

### **The Disruptive Early Medieval Dead**

**Howard Williams** (University of Chester, Chester)

Death is often characterised as a social disruption. However, rather than perfectly planned and structured events, funerals themselves are prone to all manner of unexpected disruptions that generate variability between funerals against the ideals, aspirations and expectations of the living. Disruptive agents can involve the unexpected timing and nature of the death itself, the actions of the living (mourners, participants, onlookers and unwelcome guests), the actions and interventions by non-human agents (animals, plants, artefacts, substances and architectures) and various environmental conditions affecting both funerals and burial sites (including the seasons, climate, sediments and geology). Yet the cadaver, its presence (or absence), its multi-sensory properties, decomposition and transformation, transportation and disposal, render it both a drive force in the materialities, spatialities and tempos of funerals and a source of further unpredictable and unexpected funerary disruptions. Using case studies from early medieval Britain, I explore the corporeal mnemonic agency of cadavers and bones in choreographing and disrupting mortuary and commemorative practice.

### **Mistakes and Adaptations on the Frontier: The Russians at Fort Ross, Northern California**

**Lynne Goldstein** (Michigan State University, East Lansing)

There is significant literature on frontiers and the nature of their creation and development. One topic that has had little attention is how religion and ritual in general, and mortuary ritual in particular, is incorporated into these remote locations. One hypothesis is that ritual would be maintained, but there would be more flexibility in what is acceptable. This flexibility



in what is required may lead to what appear to be (or may be) funerary failures or errors. To examine this topic, I use an example from the Russian cemetery at Fort Ross in northern California. The cemetery was in use from 1812-1841, and included Russians, Native Alaskans, Native Americans, and combinations thereof. Approximately 150 burials were recovered. The Russian Orthodox Church has very clear rules about what is required for funeral and burial, so the religious constraints were clear. At Fort Ross, the specific location and extent of the cemetery was unknown, and once we located the cemetery, we found empty graves, graves oriented the wrong way, a major shift in orientation, and significant variability in funerary artifacts. This variability continued into the present when the Church erected a large Russian cross through the middle of a grave.

### **Building Big and Sometimes too Fast – Monuments in Gamla Uppsala**

**John Ljungkvist** (Uppsala University, Uppsala)

The many monumental features of Gamla Uppsala are one of the best examples of successful memory production in early medieval Scandinavia. These 6<sup>th</sup>- and 7<sup>th</sup>-century features contributed in making the site famous throughout Northern Europe and they still make it a spectacular site. The architects behind the site were from a retrospective point successful. Yet their construction involved some mistakes. A number of monuments had to be improved and when we divide the creation of the monuments into events, it may be seen as a dynamic patchwork. In at least one case, a poor choice of mound fill eventually led to a quite ‘ugly’ royal barrow. I will also take the opportunity to mention the very early excavation of the East Mound. It was planned as a smart and rather non-intrusive enterprise. But it turned up to be a long and costly near disaster, leading to a partial collapse of the mound. But the instigator, the crown prince of Sweden, got his excavation and the tunnel into the mound turned up to be an exciting but soon dangerous tourist attraction where visitors risked to be entombed between the instable tunnel walls.

### **Reading Intentions: The Fate of Inscriptions on Early Modern Church Epitaphs**

**Estella Weiss-Krejci** (OREA Institute for Oriental and European Archaeology, Austrian Academy of Sciences, Vienna)

Colloquial use of the term “failure” reflects the condition or fact of something or someone not achieving a desired end. This implies that the failure of a mortuary program can only be identified if the original intentions are known. This paper presents a historic example that illustrates the difficulties in interpreting the purpose of mortuary monuments. The presentation focuses on early modern Austrian and German epitaphs made from stone, bronze and wood. One of the characteristics of these epitaphs, usually commissioned during the lifetime of at least one of the persons mentioned in the inscription, is the empty space for that person’s death date. On some of these epitaphs the death date was entered afterwards, often poorly executed, in other instances there was no attempt to complete the inscription at all. This paper asks whether these monuments were ever intended to be completed. Should the attempt to fix the presumed impending failure of a mortuary monument that lacks a death date be considered the true failure? An inquiry into the biographies of the epitaph owners, the style and execution of the inscriptions, the social and political background and the changing ideology concerning mortuary monuments through time provides a potential answer.

### **Please Wait, Installing Upgrades: Responses to “Failed” Memorials at Chester Cathedral, UK**

**Ruth Nugent** (University of Chester, Chester)

This paper explores how later generations ‘upgraded’ burials and memorials considered ‘embarrassments’ by the staff and patrons of Chester Cathedral (UK). The focus centres on two case studies. This first demonstrates how a seventeenth century bishop’s burial (John Pearson) was considered too humble for Victorian tastes and was subsequently exhumed, relocated and lavishly memorialised in an attempt to ‘upgrade’ his memory, mortal remains, and the cathedral itself for fear of ‘forgetting’. The second follows the evolving trial-and-error commemoration of the 22nd Cheshire Regiment, both past and present, in the midst of the Second World War. Not knowing how long the conflict would endure, the regiment struggled to balance the needs of grieving families with the tragic awareness that there were more deaths to come. Their desire to link the newly war dead with those already commemorated from the Boer War and the First World War involved a series of failed attempts and re-started memorials. By synthesising contemporary documentary evidence, antiquarian excavations, and modern archaeological approaches, this paper examines strategies to ‘future-proof’ the memory and mortal remains of those deemed ‘significant’ to the identity of the cathedral, when failure to do so constituted a monumental flop.

### **Among Ancestors, Fake Caves, and Professional Hermits in 19th Century Landscape Parks**

**Marie Back-Danielsson** (Stockholm University, Stockholm)

This paper discusses private burial grounds in landscape parks from the 19th century in central Sweden. Although landscape parks indeed are planned almost in outmost detail, my examination of a few parks demonstrates the contrary. The material also tells about improvisation, accidents and especially recounts the open-ended natures of burials. From the examples presented I will discuss how such analyses may tell a great deal about the 19th century upper-class society and its views on death and commemoration.

## POSTERS

### **Christian, Pagan or Both? A Poorly Executed Cremation at an Iron Age/Early Christian Cemetery at Gnistå, Sweden**

**Emma Sjöling** (Societas Archaeologica Upsalisensis, Uppsala), **Sofia Prata** (Societas Archaeologica Upsalisensis, Uppsala), **Andreas Hennius** (Uppland County Museum, Uppsala)

In 2013 a large cemetery was excavated at Gnistå in central Sweden. The burials span centuries, starting with a large mound burial and cremations dated to the 6th century CE and ending with early Christian inhumation burials dated to the 11th–13th century CE. One burial stood out from the rest: a man-sized pit dug into the clay, with clear evidence of fire and a burnt wooden construction. Inside poorly cremated remains of an adult were found in correct anatomical position, suggesting the body was burned in the pit—though not as thoroughly as the pagan cremations at the site. Burnt animal bones were also found in the pit. Is this a less than successful attempt to combine Christian and pagan funerary rituals during a time of religious conversion, the result of a conflict between the living in charge of the arrangements, or the dead individual being punished in some way? We hope for input from other researchers, as well as an opportunity to highlight the importance of the participation of osteologists in the field in order to document as many aspects of the mortuary practices as possible.

### **Puzzled Paleodemography, or the Influence of Cremation upon Demographic Estimates of Past Societies: An Eastern Lithuanian Sample**

**Laurynas Kurila** (The Lithuanian Institute of History, Vilnius)

Cremation of the dead has long been widespread, and past populations have left an infinity of cremation burials, or data, in terms of (bio)archaeology. Permanent advance in human osteology techniques encourages skeletal anthropologists to include cremated bone collections in their studies. On the other hand, methodological barriers still stand on the way to meeting their goals. Therefore the research should start with a question of to what degree cremation has transformed our data. To illustrate the impact of cremation, a brief paleodemographic case study is presented. The sample of 72 3th–5th century AD inhumations and 368 5th–11th century AD cremations from East Lithuania is employed. Moderately stable economic background allows one to consider change of burial form as the only cause for distinctions in demographic estimates. Life tables show different numbers of individuals in age groups, life expectancy at birth, distances in mean age at death for males and females, etc. Those differences result in further calculations, e.g. fertility rates, population size, etc. The inquiry demonstrates that even *prima facie* small inaccuracies caused by the nature of the analysed material may significantly affect our understanding of the (biological) past. Means to eliminate them are yet to be found.



## **T05S007 - ENVIRONMENTAL CHANGE: DATA, PROCESS, AND INTEGRATED MODELING**

**Organizers:** **Bülent Arıkan** (Istanbul Technical University, Istanbul), **Peter F. Biehl** (University at Buffalo, Buffalo)

The history of climate is essential to contextualize the development of social complexity, understand the scale and intensity of the early anthropogenic impacts on diverse environments, and to assess how human-environment relationships evolved spatio-temporally in relation to various phases of major climatic changes (e.g., 8.2k BP, 4.2k BP). Integrated models on the other hand, allow us to link data and processes, leading to abstraction of past events. Consequently, this session has three objectives: (1) discuss the Holocene paleoclimate and paleoclimatic changes in the eastern Mediterranean, until 500 BC, (2) review and assess major social, economic, and political changes that took place in the region in the light of climatic changes, (3) evaluate the models that focus on the coupled social and ecological systems research. Such interdisciplinary, long-term, and dynamic perspective will be the basis for more scientific approach to correlate the archaeological societies and the series of major climatic, environmental changes punctuated by stable phases that were recorded in proxy data. This session intends to discuss the wide variety of methods and to scrutinize and ‘calibrate’ paleoclimatic data by evaluating the most recent applications of paleoclimatic reconstructions using various types of proxy data, modeling the paleoenvironment, analyzing spatio-temporal patterns, integrating the results of various methods by modeling to test multivariate hypotheses, and presenting case studies.

## **ORAL PRESENTATIONS**

### **Impact of the 9.2 and 8.2 ka BP Events on Near Eastern Societies**

**Pascal Flohr** (University of Reading, Reading)

Past climate change is a much discussed topic in archaeology, especially in relation to potential effects on societies (with interpretations ranging from ‘collapse’ to ‘resilience’). As is widely acknowledged, before even starting to debate causality, it is essential to establish if climatic events documented in natural climate archives and social and economic changes observed in the archaeological record are synchronous. This paper focuses on the abrupt and short-lived 9.2 and 8.2 ka BP climatic events and their potential impact on Near Eastern societies. Both events are well-documented in climate archives

and are, partly by the work of members of our team, precisely dated. The research presented here provides a critical re-evaluation of the archaeological data, foremost by a reappraisal of archaeological chronologies by quality checking radiocarbon dates and where possible applying Bayesian statistics. At the same time, GIS are used to better evaluate spatio-temporal changes. The results show variable reactions of Near Eastern societies living through climatic events.

### **The Climate of Neolithic Anatolia**

**Neil Roberts** (Plymouth University, Plymouth)

This paper reviews the evidence for climate changes in the Anatolian peninsula for the end of the Late Glacial period and the first half of the Holocene (11,000 to 5000 Cal BC). In terms of archaeological periods, this spans the late Epi-Palaeolithic, aceramic and ceramic Neolithic, along with the early-middle Chalcolithic. Palaeoclimatic evidence comes from a range of different natural “archives”, including lake and cave isotopes, deep-sea sediment records, and pollen analysis. Synthesising these records shows good overall coherence but with some significant inter-regional differences, notably in vegetation history. Most records indicate that the climate of Anatolia during the Neolithic was overall wetter, and probably slightly cooler, than at the present-day. Potential causal links between changes in climate and the archaeological record indicate that some, but not all, changes in climate were associated with societal responses. The onset of the PPNA in southeast Anatolia coincided - within the errors of dating - with a very rapid climatic shift to warmer and wetter conditions which marked the Younger Dryas/Holocene climatic transition. However, inter-annual variability in climate (and therefore reliability of food sources) may have been as important as longer-term trends in climate or short-lived excursions for the emergence of Neolithic farming economies.

### **Environmental Records of Climate Change and Relations to Human Occupation in Southern Cappadocia (Turkey): A Geoarchaeological Research in the Kinik Tepe Area (Altunhisar-Bor)**

**Catherine Kuzucuoğlu** (CNRS, Paris), **Ali Gürel** (Niğde University, Niğde), **Lorenzo d’Alfonso** (Univ. of Pisa and NY Univ., Pisa), **Agnès Gauthier** (CNRS, Paris), **Vincent Robert** (CNRS, Paris)

A first field season of a new geoarchaeological research has been performed in 2013 in the Altunhisar-Bor plain at the foot of the Hasan dağ – Melendiz mountains range in southern Cappadocia. This research is initiated on the basis of a set of environmental questions raised by data collected during an archaeological survey of the area. The 2013 field season aimed at collecting evidences for environmental changes related to a time-framed distribution of the archaeological occupation of the plain. The data collected consisted of :- data about superficial sediment sets which record Holocene climate evolution : their physical context of deposition, their nature, and their landscape expression;- corings performed in two wetland areas, the results of which will be compared with open sections studied at other sites (including travertine exposures). These field data, used for assessing geomorphological features interpreted from satellite imagery, are also completed by laboratory analyses and dating of samples from open sections and cores. Climate reconstructions from these results can be compared with other records from other areas of Cappadocia (Eski Acigöl, Nar Gölü), and surrounding regions (Konya Plain).

### **Studying Local Climate Patterns through Stable Isotope Analysis**

**Meltem C. Üstünkaya** (University of Queensland, Queensland)

Major climatic changes have been the focus of archaeological studies since the realisation of links between climate and social change. This paper aims to understand the relationship between local climate patterns and changes in the occupation of Central Anatolia in the Bronze and Iron Age periods. Specifically, Carbon and Nitrogen stable isotope analyses are used in conjunction with grain weight analysis to understand the effect of micro climate events on long term agricultural production. Direct remains of agricultural production -crop cereals- from Kaman-Kalehöyük are analysed with stable isotope and grain weight techniques. Studies show that  $\Delta 13C$  and precipitation are directly linked to each other.  $15N$  isotope analysis shows that manuring of fields is correlated with the values of  $15N$  in plant materials. Grain weight analysis shows that grain weight depends on water availability during the growth period of the cereal crops. Thus, via the integration of these techniques this paper demonstrates that the integration of stable isotopes into climate studies brings a clearer understanding of the local climate patterns of the past. Results indicate that changes in water availability and soil enrichment occurred during the Bronze and Iron Age occupation at the site.

### **Evidence of Local Microclimatic Variation in the Ancient Northeastern Mediterranean and Its Implications for the Study of Climate Change as a Cause of Civilizational Collapse during the Late 3rd millennium BCE**

**Adam Schneider** (University of San Diego, San Diego)

Over the past two decades, debate concerning the role of climate change in the collapse of ancient states and empires during the late 3rd millennium BCE has sparked a resurgence of interest in the Middle-to-Late Holocene paleoclimate record of the Eastern Mediterranean. Although this renewed focus has been reflected in a number of recently-published findings which have added to our understanding of the environmental backdrop for the dramatic (and frequently traumatic) events which took place in the region during this tumultuous period –the question of the overall role of climate change in the col-

lapse of Early Bronze Age civilizations remains unresolved. Rather, it has become increasingly clear that the paleoclimate record for this period is extremely complex, and that local conditions during the late 3<sup>rd</sup> millennium varied considerably, even at relatively small geographical scales. Here, new proxy evidence for late 3<sup>rd</sup> millennium conditions in the Aegean, Anatolia, and northern Mesopotamia which will be presented to demonstrate the importance of understanding local microclimatic variations when assessing the role played by climate change in instances of late 3<sup>rd</sup> millennium collapse.

### **The Application of Macrophysical Climate Model in the Malatya Plain (4000–1200 BC)**

**Bülent Arıkan** (Istanbul Technical University, Istanbul)

Malatya Plain, a well-watered karstic upland plateau in the upper Euphrates Basin –eastern Anatolia–, had been a significant region for the middle Holocene societies as implied by the numerous sites from the Chalcolithic to the Bronze Age. Specifically, the ongoing archaeological research at Arslantepe since 1960s has revealed significant changes in the economy, social organization, and technology of these early polities. The archaeological record at Arslantepe, the largest mound on the Plain, suggests change from intensive agricultural production controlled by chiefs during the Late Chalcolithic to site-tethered pastoralism in the Early Bronze Age-I and then to specialized transhumant nomadic pastoralism by the Early Bronze Age-III. Increasing number of proxy-based paleoenvironmental reconstructions (i.e., carbon and oxygen isotope ratios as well as charcoal and pollen analyses) suggest that the climate of the Plain changed from warmer and wetter during the Late Chalcolithic (3400-3000 BC) to warmer and drier in the Early Bronze Age (3000-2500 BC). In the first part of this paper, I will discuss the application of the Macrophysical Climate Model (MCM). This is a regression-based, local downscaling of a global paleoclimate general circulations model, which will provide retrodictions of past precipitation and temperature at 100-year resolution for the Malatya Plain between 4000 and 1200 BC. The methods of airflow shed and spatial interpolation used in modeling will also be explained. In the second part of the paper, I will compare the results of MCM with the results of proxy-based reconstructions in order to assess the level of correlation between different methods in reconstructing the paleoclimate. Such comparisons will not only show how reliable the retrodictions of MCM may be but they will also provide a climatic framework for the models of landscape evolution and land use on the Plain.

### **Computer-Based Simulation of Surface-Processes, and Digital Reconstruction of Paleoenvironment during the Early Bronze Age-I at Arslantepe–Malatya, Eastern Turkey**

**Isaac I. Ullah** (University of Pittsburgh, Pittsburgh)

Simulation modeling has proven to be a useful new direction in the study of long-term human land-use dynamics. In order to answer many of the questions related to the formation of the modern anthropogenic landscape, such simulation studies must be situated in realistic reconstructions of past environments, and must be emplaced in a simulation “world” in which natural landscape processes are continually operating. This presents several analytical and practical problems: Firstly, past landscapes are likely to have been quite different from their modern counterparts. Secondly, we typically have only scant proxy-records (pollen, charcoal, faunal bone, sedimentary deposits, and other geomorphological clues) to help us understand what past environments were like. And thirdly, the degree to which modern landscapes are a result of anthropogenic changes is often unclear, especially in the degree to which human activity could have affected “natural” surface processes. In the first part of this paper, I will discuss several methods I have devised for reconstructing past patterns of vegetation, soil properties, and topography within a GIS framework, and which together constitute a formal digital reconstruction of ancient environments. These methods are designed to address the first two issues raised above, working within the limitations of the data typically available to archaeologists. In the second part of the paper, I will discuss the construction and operation of natural surface-process models including vegetation succession, soil fertility dynamics, and erosion/deposition simulation. These simulations are designed to address the third issue raised above, and were designed to operate with modest computational needs so that they can be run concurrently with simulations of human land-use. I will use the Early Bronze Age I environment in the region surrounding Arslantepe as a case study in which to elucidate these methods.

### **The Agent-Based Modeling of Agropastoral Land Use during the Early Bronze Age-I Arslantepe —Malatya, Eastern Turkey—**

**Sean Bergin** (Arizona State University, Tempe)

Computational modeling of complex human and environmental interaction has begun to gain traction as a valuable instrument for testing ideas about the mechanisms and relationships in socio-natural systems. The suite of dynamic variables which operate across space and time are difficult, if not impossible, to capture in a purely conceptual model. Moreover, the social aspects of socio-natural landscapes and the human adaptations to changes in that landscape, cannot be captured with simple landscape process models or charts of climatic variation. Even when detailed conceptual models can be proposed, the allegorical nature of these models leaves them difficult to authenticate. On the other hand computational models cannot provide definite answers and should only be used to explore the parameters and linkages inherent in prehis-

toric complex systems and as an instrument to better understand the consequences of that interaction. In this submission, I will describe a research program as applied to multiple Early Bronze Age sites in the region surrounding Arslantepe. The previously developed, MedLands Modeling Laboratory (MML) couples an agent-based model of small-scale agropastoralists with models of landscape evolution to enable controlled study of socio-natural interactions. In the MML, agropastoralists make subsistence decisions at a household-level based upon past returns, household needs, ownership constraints, and conditions in the surrounding environment. These decisions drive land-use practices that can reshape the landscape through the interactions with natural processes like climate, vegetation growth, erosion, and soil fertility. Here, the MML is applied to the Arslantepe region to evaluate the recursive consequences of anthropogenic and environmental dynamics upon Early Bronze Age communities.

## POSTERS

### **MIS 3 AND MIS 2 Transition and Upper Palaeolithic Cultures in Hungary: A Case Study from a Loess Profile at Katymár**

**Pál Sümegi** (University of Szeged, Department of Geology and Palaeontology, Szeged), **Dávid Molnár** (University of Szeged, Department of Geology and Palaeontology, Szeged), **Katalin Náfrádi** (University of Szeged, Department of Geology and Palaeontology, Szeged), **Szilvia Sávai** (University of Szeged, Department of Geology and Palaeontology, Szeged), **Balázs Pál Sümegi** (University of Szeged, Department of Geology and Palaeontology, Szeged)

The loess section of Katymár consists of several loess and paleosol layers corresponding to shorter intervals of coolings and warmings (some ~10kyr). The dominance curves of the cold-resistant mollusc species are similar showing the characteristic cooling maxima which could be connected to different environmental conditions: humidity and vegetation cover. In the section 4 cooling maxima could have been detected. This poster shows the effects of these changes to the flora and fauna especially the Palaeolithic cultures.

### **Long Term Environmental Changes and Palaeolithic Cultures from the Western Part of the Carpathian Basin: Relationship between Man and Nature**

**Dávid Molnár** (University of Szeged, Department of Geology and Palaeontology, Szeged), **Pál Sümegi** (University of Szeged, Department of Geology and Palaeontology, Szeged), **Sándor Gulyás** (University of Szeged, Department of Geology and Palaeontology, Szeged)

Long term environmental changes at a resolution of some hundred or thousand years can be assessed by the investigation of various paleoarchives, including terrestrial archives. Among terrestrial archives the loess/paleosol sequences tend to be the most common and most prominent type of deposits of the Quaternary, covering about 10-15% of the area of modern Hungary. One of them the Udvari 2A section which is the thickest (92 m) and probably the most complete loess-paleosol section covering ca. the past 1100 kys. The upper part of the section shows meso and macro scale environmental changes from the past 800 kys which could be compared with the time horizons of Palaeolithic cultures in the Transdanubia and the Carpathian Basin.



### **T05S008 - BEYOND BURIALS: TRANSFORMING THE DEAD IN EUROPEAN PREHISTORY**

**Organizers: John Robb** (University of Cambridge, Cambridge), **Christopher J. Knüsel** (Université de Bordeaux, Bordeaux)

No aspect of the archaeological record has been normalised as much as deathways. In all societies, people do many things with the dead; archaeologists typically only see the things they define as official “burials”. Most commonly, this involves seeing only single burials. This derives from skeletal studies’ traditional focus upon complete skeletons, and from successive theoretical paradigms which reduce the burial process to narrow interpretations; for instance, culture historical models sought to find a “typical” burial treatment characteristic of each group, and processualist archaeologists sought to identify individual status in burials. It also derives from a lack of methods for dealing with disarticulated and commingled human bone. Two recent developments reorient our study of deathways completely. The first is conceptual: death and burial are social processes which involve the transformation of the dead into new beings or memories through complex ritual programmes, programmes which usually have many stages and alternative pathways. The second is methodological: the development of a coherent package of taphonomic methods for documenting how people acted upon the body and accomplished this transformation. Taphonomic studies of prehistoric funerary assemblages reveal the great variety of practices replacing the traditional models of burial. This session brings together taphonomic studies of prehistoric assemblages from across Europe to show the variability of prehistoric funerary practices.



## ORAL PRESENTATIONS

### **Beyond the Bones: Approaching the Diversity of Funerary Treatments of the First Settled Societies in the Levantine Natufian, (13000-9500 cal BC)**

**Fanny Bocquentin** (Centre de Recherche Français à Jérusalem, USR 3132 CNRS, Jerusalem)

At the beginning of the thirteenth century BC, with the Natufian culture, permanent settlements emerged in the Near East, together with a drastic increase in the number of burials. The latter have been discovered in the immediate vicinity of houses, or, alternatively, in the remains of abandoned structures. About 500 Natufian skeletons have been unearthed since 1928. In the last two decades, researchers have viewed these burials through the lens of archaeoethnology in the field as well as in laboratory work that combines osteological study and archive investigation. This type of approach has permitted retrieval of common cultural constants from site-specific observations in order to clarify the relationship between houses and burials and to refine understandings of social behaviours. Moreover, it reveals previously unknown aspects of burial treatment, including pre- and post-depositional handling. Within a synthetic framework, case studies will be presented in order to share methodological aspects and to chart developments in archaeoethnological applications.

### **The Seated Dead: Evidence of the Funerary Complexity from the Early Late Bronze Age in France**

**Stéphane Rottier** (Université de Bordeaux, Bordeaux), **Mathilde Cervel** (Ecole Pratique des Hautes Etudes, Paris)

In the early Late Bronze Age, novel funerary practices have been highlighted in several cemeteries located in the Seine / Yonne and Seine / Aube confluences (France). These practices are characterized by the posture of the deceased, but also by the structure of the tomb and its operation. Indeed, the dead are in a seated position in a container, most often a rigid one, which is then placed in a pit whose diameter rarely exceeds one meter. The use of these tombs does not appear to be limited to the deposit of the deceased as re-opening and post-inhumation actions have also been identified. Many of these graves contain animal bones, sometimes in large quantities, above or next to human bones. Furthermore, anthropogenic interventions, including bone removal during or after corpse decomposition, can be demonstrated. These practices are particularly well illustrated in the "Frécul" necropolis in the Barbuise and La Saulsotte areas (Aube). Tombs may also be re-used for a new burial as it can be seen at Barbey "Les Cent Arpents" (Seine-et-Marne). These findings allow us to propose hypotheses about the complexity of these funerary structures and their functioning.

### **Traumatized Bodies: Ritual or Violence?**

**Christopher J. Knüsel** (Université de Bordeaux, Bordeaux), **Scott Haddow** (Stanford University, Stanford), **Nu-man Arslan** (Bilecik University, Bilecik), **Joshua W. Sadvari** (The Ohio State University, Columbus), **Kasia Hara-basz** (Adam Mickiewicz University of Poznań, Poznań)

Neolithic Çatalhöyük is famous for its striking imagery of headless bodies, heads appearing to have been plucked from bodies by giant vultures. Since Kenyon's (1950s) work at near contemporary Jericho (Palestine), Rollefson's 1980s excavations at 'Ain Ghazal (Jordan), and Mellaart's 1960s and now Hodder's 1990s-to-present work at Çatalhöyük (central Anatolia, Turkey), the head appears to have been a focus of ritual significance in the early Neolithic of both Anatolia and the Levant. Plastering of some of these and apparent post-mortem removal and separate deposition of others have been interpreted as a 'skull cult' indicative of ancestor worship but also, more recently, as possible headhunting by the sadly, recently-deceased social anthropologist Alain Testart, who championed the importance of using archaeological remains as a complement to anthropological study of non-Western peoples. Although hypothetically reconstructed, the secondary intervention by which skeletal elements were retrieved has not previously been recovered, so the method of post-mortem retrieval by human agency was left open to conjecture. In this contribution, a case of cranial and mandibular retrieval using 3D recording is presented, the rudiments of the 'differential diagnosis' of the funerary rites responsible discussed, and the potential interpretive meaning of such practices considered.

### **Extending Death-Ways: Post-Mortem Body Manipulations in the Mesolithic-Neolithic Period of the Danube Gorges, Serbia**

**Rosalind Wallduck** (Natural History Museum, London), **Silvia Bello** (Natural History Museum, London)

At the Mesolithic-Neolithic sites of Padina, Lepenski Vir, Vlasac, and Hajdučka Vodenica (Serbia) numerous disarticulated human remains were uncovered, along with articulated burials. Suggestions of secondary burial practices have been made, but without understanding the burial pathways of human remains. This paper presents the results of taphonomic analysis of disarticulated human remains from Padina, Lepenski Vir, Vlasac, and Hajdučka Vodenica. This includes micro-morphometric analysis of the cut-marks found on human bone, studied using new 3D scanning microscopy technology (the Alicona Infinite Focus Microscope). Various geographically and temporally extended funerary pathways have been identified at these sites.



These results provide a new perspective on Mesolithic-Neolithic death. Post-mortem body manipulation was often planned, performed, and deliberate, but in some cases was more *ad hoc*. By transforming the dead and extending their death-ways, they were not simply buried and forgotten. The dead were instead modified, manipulated, divided, and remembered.

### **Ritual Defleshing in the Italian Neolithic: Taphonomic Analysis of Grotta Scaloria**

**John Robb** (University of Cambridge, Cambridge), **Christopher J. Knüsel** (Université de Bordeaux, Bordeaux), **Maryanne Tafuri** (University of Rome La Sapienza, Rome) **Ernestine Elster** (UCLA, Los Angeles), **Antonella Traverso** (University of Genoa, Genova), **Eugenia Isetti** (University of Genoa, Genova)

The European Neolithic displays a surprising variety of deathways. This paper documents one previously unknown, the systematic defleshing of the dead at Grotta Scaloria, Puglia, Italy (ca. 5500-5000 BC). In this unique site, both complete and partial bodies were stripped of flesh, disarticulated and broken up and discarded. We present the results of a full taphonomic analysis and briefly discuss the possible social meanings of this action.

### **Keeping the Family Together: Curation, Imitation and Veneration of the Dead in a British Prehistoric Landscape**

**Martin J. Smith** (Bournemouth University, Bournemouth), **Michael J. Allen** (Allen Environmental Archaeology, Wiltshire), **Thomas Booth** (Sheffield University, Sheffield), **Richard Madgwick** (Cardiff University, Cardiff), **Lauren Bailey** (Bournemouth University, Bournemouth) **Francine O'Malley** (Southampton University, Southampton), **Gabrielle Delbarre** (Bournemouth University, Bournemouth), **Martin Green** (Independent Researcher, Sixpenny Handley)

For long periods in prehistory the burial record of many regions often appears decidedly homogeneous with protracted periods where a particular 'standard' mode of burial is followed, only to be replaced with another equally basic and simple means of disposing of the dead. Such a view has previously characterised the situation in Britain where the disarticulated burials of the Earlier Neolithic supposedly gave way to the simple, flexed inhumations of the Later Neolithic and Bronze Age. However, such views may, in fact, be grossly oversimplified due to a disproportionate focus on grave goods and monuments and an overly reductionist approach to burial interpretation. This paper presents observations of a range of Neolithic to Bronze Age burials from Cranborne Chase, Dorset, UK, in which a more holistic approach is followed giving equal weight to taphonomy, microscopic analysis, archaeoethnatology and contextual dating to reveal a more nuanced picture where the dead were dealt with in much greater variety and in ways which are both surprising and a good deal more interesting than previously assumed.

### **Fragments of Death: A Taphonomic Study of Human Remains from Neolithic Orkney**

**Rebecca Crozier** (University of the Philippines, Manila)

Recognition of tremendous variation in the treatment of the dead, both temporally and geographically, has done little to curtail our pursuit of homogenous mortuary rites for monuments which appear, by virtue of their architecture, to be similar. This is aptly demonstrated in considering the Neolithic tombs of Orkney, Scotland. The Orcadian human bone assemblages represent the largest volume for this time period from Britain – a significant resource. However, discrete skeletons are lacking, the researcher being presented with formidable volumes of disarticulated and comingled remains. Themes of transformation, fragmentation and manipulation of the body permeate the literature, conferring on the tombs significance as places of transition. Previously, the inherent complexity of the remains has made them an unattractive proposition for detailed study. New interpretations are derived from examination of excavation reports, rather than the material itself. However, advances in taphonomic analysis means techniques now exist for approaching such complex assemblages. A study has now been successfully carried out on the Orcadian remains, uncovering a wealth of new data. This data draws attention to subtle variations in practice between and within tombs, and pushes for a dramatic reconsideration of our current understanding of the practices and cosmologies associated with these enigmatic structures.

### **A Single World for Life and Death. A Review of the Manipulation of the Dead in Neolithic Greek Macedonia**

**Yiannis Kozatsas** (School of History and Archaeology, Aristotle University of Thessaloniki, Thessaloniki), **Sevi Triantaphyllou** (School of History and Archaeology, Aristotle University of Thessaloniki, Thessaloniki)

More than two decades of intensive archaeological research in Macedonia has revealed an elaborated mosaic composed of varying and complex practices in relation to the manipulation of the dead human body. Shifting mortuary behaviors which dissolve the strict positivist division between primary and secondary burial reflect an unending continuous fluidity involving the concurrent practice of formal inhumation, cremation, disarticulation and manipulation of the fragmented body but also circulation of transformed human remains within the living communities. This phenomenal fluidity appears to shape into a discrete patterning in space and time while moving from the West to the East and from the 7th to the 4th millennium

BC. The character of this picture raises questions about traditions in change, cultural interactions, social differentiations and renewing symbolic ideological expressions. This review aims to put in doubt our own monolithic categorizations in mortuary behavior and view the concept of burial itself and its reconfiguration as a complicated open-ended social process which rather transforms a person's relationship to the rest of the society that leads him or her away from the 'world of the living'. On this basis the Neolithic world ceases to be sub-divided into two absolute and separate spheres of 'living society' and a transcendent 'other world', but rather culminates into a single all embracing reality which incorporates the present and the past into a unique notion.

### **Other than Burials: Death, Bodies, and Transformation in Prehistoric Cyprus**

**Kirsi O. Lorentz** (Science and Technology in Archaeology Research Center, The Cyprus Institute, Nicosia)

This paper investigates the variety of ways in which the dead were treated in prehistoric Cyprus, through time, and to what extent archaeologists and physical anthropologists have paid attention to modes other than (single) burial. A variety of contexts containing human remains treated in different ways have been identified in the archaeological record of prehistoric Cyprus (for the purposes of this paper defined as stretching from the earliest evidence for human occupation to the Late Bronze Age), including the following: formal burial contexts containing single inhumations, either within settlements, or in formal cemeteries; burial contexts containing multiple primary inhumations; burial facilities containing both primary and secondary depositions of human remains; formal burial facilities containing (sometimes elaborate) secondary arrangements of human remains; settlement contexts (such as pits, middens, and general settlement deposits) containing human remains; and other human-made features (such as water wells) with human remains. The paper concludes that more detailed studies are required taking into account the whole variety of practices relating to the treatment of the dead, and the transformation of their bodily remains in prehistoric Cyprus. Further, alternative interpretations for human remains occurring in settlement debris and humanly made features other than formal burial facilities, beyond their interpretation as refuse from accidentally disturbed (single) burials, needs to be considered. More detailed taphonomic data need to be recorded as a matter of course for all archaeological human remains discovered in Cyprus in order to further these lines of enquiry.

### **Biographies, Practices, and Social Change: Multi-Scalar Research at the Late Neolithic-Early Bronze Age Collective Burial of Bolores, Portugal**

**Katina Lillios** (The University of Iowa, Iowa City), **Jennifer Mack** (The University of Iowa, Iowa City), **Joe Alan Artz** (The University of Iowa, Iowa City), **Anna J. Waterman** (Mount Mercy University, Cedar Rapids), **Briana Horwath** (The University of Iowa, Iowa City), **Liv Nilsson Stutz** (Emory University, Atlanta)

The spatial segregation of settlements and burials in many prehistoric contexts and the different methods used to study these sites often create an epistemological disjuncture between archaeologists' understanding of the lifeways and deathways in these communities. In order to better articulate the lifeways and deathways of Neolithic peoples in the Iberian Peninsula and shed light on the nature of the social landscape during this time, excavations have been conducted since 2007 at the Late Neolithic-Early Bronze Age burial of Bolores, Portugal. In this paper, we discuss our analyses of the use of space in this small artificial cave, the biographies of the adults and children buried in it, and the interactions the living had with these dead over time. The methodological and interpretative frameworks used to analyze the site, which consist of bioarchaeological and taphonomic analyses combined with GIS, are also presented. As Bolores was perhaps used for only a few centuries, with the burial space becoming more structured and constrained over time, we also consider how the site's material constraints, and those of enclosed burial spaces in the Neolithic, may have contributed to important social transformations during this time.

### **Death Performance in the Prehistoric Aegean: The Transformation of the Dead Body and the Revival of New Experiences for the Living**

**Sevi Triantaphyllou** (Aristotle University of Thessaloniki, Thessaloniki)

Mortuary activity in the prehistoric Aegean has until now focussed research on the exploration of features relating primarily to the mortuary landscape and visibility of memory places, the architecture of different grave types, the deposition of grave goods but also to practices of consumption and ideologies linked to death rites. Acts related to the actual treatment of the body after burial, although classified under the general label of secondary treatment of the deceased only recently have become the focus of a central discussion tracing the different stages of mortuary complexity and their link to ritual performances as instrumental part of death management. This talk will investigate key issues related to the manipulation of the deceased in the prehistoric Aegean based on taphonomic criteria. Varying degrees of disarticulation combined with a particular interest to the management of the fragmented body in the Neolithic Greece and the EBA pre-palatial societies of Crete are succeeded by an increasing elaboration of care for the whole body in the MBA and LBA Aegean. Death performance and handling of human remains by the living appear to have played a key role as devices to manipulating the past and ritualizing the present.

## **Commingle Burials and Shifting Notions of the Self at the Onset of the Mycenaean Era (1700-1600 BC): The Case of the Ayios Vasilios Northern Cemetery, Laconia**

**Ioanna Moutafi** (University of Sheffield, Sheffield), **Sofia Voutsaki** (University of Groningen, Groningen)

Mortuary practices in southern Greece undergo a radical transformation at the beginning of the Mycenaean era (or Late Bronze Age, around 1700 BC). This period sees the introduction of formal cemeteries, larger tombs, richer burials and a more complex ritual sequence involving multiple interments, tomb re-use and the 'secondary treatment' of earlier burials. 'Secondary treatment' is a rather vague, all-inclusive term, which includes various practices, such as disarticulating skeletons, mingling the bones, relocating them in piles or scatters either inside or outside the tomb (completely or selectively). Two questions arise: Why is this practice introduced? Why does it take different forms? The recent excavation of Ayios Vasilios Northern Cemetery in Laconia, Greece, was designed on the basis of an integrated bioarchaeological strategy in order to provide the opportunity to fully explore these issues. The contextual analysis of the osteological, cultural and taphonomic data permits the reconstruction of the multi-staged practices and their special characteristics (intentionality, sequence, bone selection etc.). Through a comparative analysis of contemporaneous examples, we will attempt to understand these choices against the background of changing notions of the self and shifting attitudes to the ancestors.

## **Bone Piles: Taphonomy and Zonation as Aids to Assess Meaning from Commingle Mycenaean Burials**

**Olivia A. Jones** (University of Groningen, Groningen)

Commingle human remains are found in diverse combinations and contexts, so how can researchers analyze and understand these assemblages? In this paper, the questions addressed include: how can osteoarchaeologists interpret a large enclosed tomb, in which disarticulated and commingle human remains are placed in piles? What could the practice of piling bones possibly mean? The case study derives from a stone-built tomb (Petroto) within a peripheral region of the Mycenaean world, approximately 1550 B.C., in which one level of the tomb floor consists of piles of human remains placed near the eastern edge of the tomb. This practice is observed elsewhere in Mycenaean burial customs, but Petroto may represent a regional variation. The human remains were recorded employing a zonation methodology designed for fragmented skeletal material, in general, and also used here to precisely record the areas with taphonomic changes. The taphonomic examination will help identify the past actions that were carried out in the tomb. Recent hypotheses of materiality and the context of Mycenaean mortuary practices in general will be combined with the taphonomic data to produce a fuller picture of the mortuary practices and ideas exhibited in the Petroto tomb.

## **Collective Burial or Ossuary? Human Remains from Alba Iulia -Lumea Noua Neolithic Site (Transylvania, Romania)**

**Mihai Gligor** ("Decembrie 1918" University of Alba Iulia, Alba Iulia), **Kirsty McLeod** (Liverpool John Moores University, Liverpool)

In the current stage of research, knowledge about the mortuary practices of the Neolithic communities from Transylvania is scarce. There are few funerary discoveries and necropolis are rare. During excavations in 2003, 2005 and 2011, remarkable discoveries of a funerary complex with unique mortuary practices were made in the Alba Iulia-Lumea Nouă site (Alba County, Romania). They correspond to the end of the late Neolithic and beginning of the Transylvanian Eneolithic. The main focus of this paper is to show present research of unusual mortuary practices from the 2011 campaign. Several human crania, mandibles and maxillae, as well as long bones and vertebrae were found in an area of about 2x2m. The disarticulated human remains belong to an estimated MNI of 18 (nine adults and nine subadults). At least four adults present blunt force trauma on the skull in the form of depressed fractures. Samples of human bone were collected in 2012 and 2013 for radiocarbon analyses. The AMS dates suggest a relatively short timespan of use of this funerary complex- for less than 200 years, between 4550-4380 BC.

## **Absent Body – Visible Personhood. Power, Social Competition and Death in Late Iron Age Dacia**

**Mariana Egri** (Babes-Bolyai University of Cluj-Napoca, Cluj-Napoca)

During the Late Iron Age the communities from Dacia experienced several transformations of their funerary practices, some resulting from the interactions with various incoming groups, others being determined by internal social-political evolutions. These transformations led to the gradual disappearance of "proper burials", most of the corpses being disposed of in an apparently invisible manner. During the late phase only a small number of human remains were recovered and only from "non-funerary contexts". Until very recently this phenomenon was related almost exclusively to some rather vaguely defined changes of religious nature, whereas the impact of the social-political structures and mechanisms, and the concepts regarding the changing relation between body and personhood were neglected. The paper aims to discuss the social-political transformations that led to the gradual disappearance of "proper burials", as well as the content, significance and scopes of the funerary practices during the period in which bodies were not formally interred. The practical and symbolic

transformation of the dead as social actors will also be discussed. Another aim is to propose some methodological means through which these practices and the deceased themselves can be archaeologically identified.

### **Ritual Butchering of the Dead – The Strange Archaeological Record of the Bandkeramik Site of Herxheim (Palatinate, Germany)**

**Andrea Zeeb-Lanz** (Generaldirektion Kulturelles Erbe Rheinland-Pfalz, Speyer), **Bruno Boulestin** (University of Bordeaux, Bordeaux), **Christian Jeunesse** (MISHA Strasbourg, Strasbourg), **Fabian Haack** (Free University of Berlin, Berlin) **Rose-Marie Arbogast** (MISHA Strasbourg & CNRS, Strasbourg), **Anne-Sophie Coupey** (University of Bordeaux, Bordeaux), **Silja Bauer** (Generaldirektion Kulturelles Erbe Rheinland-Pfalz, Speyer), **Rouven Turck** (University of Zurich, Zurich), **Dirk Schimmelpfennig** (Generaldirektion Kulturelles Erbe Rheinland-Pfalz, Speyer), **Anthony Denaire** (University of Strasbourg, Strasbourg)

In the Bandkeramik site of Herxheim, a settlement with a surrounding earthwork, more than 500 human individuals were treated in an abnormal way. After having been killed, they were handled like animals that are cut up for nutritional reasons. The cutmarks on the human bones show many similarities with those encountered in animal butchery – from the cutting off of the extremities, the taking out of the vertebral column, the scraping off of the meat from the long bones and the torso to the breaking up of the bones to get to the marrow. This treatment follows a repetitive and normative pattern of actions and the human remains are accompanied by a large number of specially selected artefacts. Human victims were part of a strange and complex ritual. Scientific analyses hint at a foreign origin of the humans that were sacrificed, butchered and probably also cannibalized in the course of extraordinary rituals. The mostly intentionally smashed artefacts were finally deposited in concentrations, together with the human remains, inside the earthwork around the settlement. It can be shown that these butchered and presumably cannibalized individuals were not buried but deposited as ritual waste inside the enclosure.

### **They Die, and Leave no Sign. On the Problem of Death Associated Rituals in the Chalcolithic of NE Romania**

**George Bodi** (Romanian Academy - Iași Branch, Iași), **Luminita Bejenaru** (Romanian Academy - Iași Branch, Al. I. Cuza University of Iași- Faculty of Biology, Iași), **Loredana Solcan** (Romanian Academy - Iași Branch, Moldova National Museum Complex Iași, Iași)

One of the greatest challenges that the Chalcolithic Cucuteni culture (Vth - IVth millennia CAL. B.C.) forces upon Romanian archaeologists is constituted by the reconstruction of the attitude towards death of its population. The different archaeological realities observed have led to various interpretations: deposition of entire body, burial, deposition of body parts, ritual deposition, scattered bones/bone fragments, and ritual anthropophagy or a lack of unconcern for the dead. Our presentation will briefly review the different types of discoveries of human remains and will critically discuss their latest interpretations, presenting our own observations on 31 human bone fragments. We will further anchor our own discourse into an adductive line of reasoning, and we will adopt a philosophical platform rooted in a heideggerian relational ontology. From this theoretical stance we will argue that the various contexts of human remains identified for the Cucuteni culture actually represent only stages of a complex manner of dealing with death. Acknowledgement: This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS –UEFISCDI, project number PN-II-ID-PCE-2011-3-0885.

### **Old Material – New Perspective: Gathering Information from Fragmented Osteological Material from Bronze Age Stone-Cist Graves in Jõelähtme, Estonia**

**Eve Rannamäe** (Department of Archaeology, Institute of History and Archaeology, University of Tartu, Tartu), **Liivi Varul** (Department of Archaeology, Institute of History and Archaeology, University of Tartu, Tartu)

Stone-cist graves are round structures with central cist(s) and one or more exterior circular walls. They were used throughout the Late Bronze Age (around 1200–500 BC) in coastal regions of Estonia. Although the graves appear to be meant for a single burial, usually remains of multiple individuals are found within them. In 1980s 36 graves in Jõelähtme in Northern Estonia were fully excavated. We have approached the bone material using osteological and taphonomic methods, together with contextual analysis. The fragmented nature of the bones and problematic documentation has made the study challenging but fruitful. Some examples of the results: minimum number of human individuals in graves varies from zero to six, all age groups are represented; there are several mammal and bird species; none of the human or animal skeletons are complete or articulated, even though bones preserve well in that environment. Our presentation tackles various questions such as why are numerous skeletons represented only by few bone fragments? Why were human remains often commingled with animal bones? How do we explain different taphonomic features e.g. heavy fragmentation and only a few cut-marks? Which animal bones can be associated with the burial customs? Why does the number of individuals per grave vary so extensively?

## The Warriors from the Lake

**Ejvind Hertz** (Skanderborg Museum, Skanderborg), **Lene Møllerup** (Skanderborg Museum, Skanderborg)

In a damp marsh in Jutland, Denmark, around 1700 human bones were discovered, dating from around the time of the Birth of Christ. The bones derive from more than 60 persons, predominately young males commingled and in no anatomical order. The bones show clear signs of being victims of violent acts, and several also bear witness of being left on the battlefield where wild animals fed on the carcasses. Thereafter the bones were collected and deposited by the victorious in a once prehistoric lake. The find indicates an act of complex rituals performed by the victorious where complete annihilation of the individuals through deliberate separation of body parts and traces of mutilation of the victims was of great importance in the processes of transforming the dead. This practice has not been seen previously in the European Iron Age. This paper presents the finds and discusses this variation in funerary practice.

## POSTERS

### (Micro)Taphonomy of a Reopened Early Bronze Age Inhumation Grave

**Edeltraud Aspöck** (OREA, Austrian Academy of Sciences, Vienna)

Re-opened graves occur across all periods and regions. There are many reasons for the re-opening of graves, including funerary rituals, the symbolic meaning of objects or human remains, ancestral rites, or simple robbery for materialistic gain. However, to assess the circumstances of the re-opening, we have to first understand the archaeological record. In this poster I will present results of my fieldwork on a re-opened early Bronze Age inhumation grave in Austria. The objective of the fieldwork was to maximize data recovery for the reconstruction of the site formation processes. A variety of methods were applied, including archaeoethnology, single finds recording, and soil analysis (micromorphology). The overall methodological objective of the project is to develop a taphonomy-based method for the analysis of re-opened graves.

### Variability of Death: Cremation, Inhumation and Cenotaph in Neolithic North-West Romania

**Sanda Băcuc** (History and Art Museum, Zalău), **Mihai Gligor** ("Decembrie 1918" University of Alba Iulia, Alba Iulia), **Mariana Roșu** (National Institute of Legal Medicine "Mina Minovici", Bucharest)

Archaeological literature abounds in presentations and interpretations of funeral behaviors. There are common funeral rites and rituals specific for the Neolithic community, but there are also unusual ones, which raises many questions. Why certain communities exclusively used inhumation while at the same time other very similar communities preferred cremation, or both rites. What are the mental mechanisms that regulate or change this behavior? Why are there cases of so-called "unusual" burials - for whom or what do these different funeral behaviors appear? These are some of the questions that we pose in the context of funerary discoveries from Poșta "Corău" (Sălaj County), northwestern Romania, where the funerary discoveries provided examples of different funeral rites and rituals: cremation, inhumation, and cenotaphs, as well as tombs placed within the living area or in specific areas at the periphery of the settlements. In the context in which the inhumation rite was considered common to all the Neolithic communities in the Carpathian area, the cremation graves discovered during the last years confirm once again that the only generalization that can be made in the attitude towards death is...variability.

### Unequal Early Bronze Age Family Tomb from Drazhevo Village, Bulgaria

**Stefan Bakardjiev** (Regional historical museum, Yambol)

In 2004 the team from the Regional Historical Museum at Yambol excavated one burial mound near the village of Drazhevo. A circle comprised of red stones was found in the central part of the mound. They derive from a quarry 10 km to the south. A second circle was found in the northern half of this structure. This one was made with local stones. This grave structure contained six graves: two cremations in the small stone circle and four inhumations in the bigger stone circle. The dead were laid in flexed position and sprinkled with red ochre. The grave good inventory of the dead includes ceramic vessels, three bronze awls, a bronze knife, six silver twist pendants and four round silver plates. This is the first family tomb in which six funerals occurred dating from different periods. The burial mound dates to the Early Bronze Age, and it connected with the migration of people from the Pit Grave culture. The aim of the poster is to present these unequal grave structures which are without parallels in Bulgaria.

### Doing Things with Dead and Standing Stones

**Gail Higginbottom** (Australian National University, Canberra), **Roger Clay** (University of Adelaide, Adelaide)

Taphonomic studies are not the only way to reveal the social processes that involve the transformation of the dead into new beings or memories through complex ritual programmes. Detailed landscape archaeological methods now have the power to both unravel complex traditions related to the dead as well as to uncover the origins of these processes in the



millennia preceding them. Standing-stone monuments were erected across Britain from the Neolithic almost until the end of the Bronze Age. Despite the variety of standing-stone monuments created, it was previously empirically verified by us that for many Bronze Age monuments erected between 1400-900 BC there was a common set of complex landscape and astronomical patternings, along with a strong and varied association with the dead. However, when and where these patterns were first introduced through standing-stone structures was unknown. In this paper, we can now show that the visible astronomical-landscape variables, and their concomitant connection with the dead, were first established nearly two millennia earlier, with the erection of the first standing-stone 'great circles' in Britain. These circles denote a significant change in the lithification of people's cosmology and the way the dead maintained power in the world of the living.

### **Cremation Ceremony Features of the Middle Oka-River Population in the Second Half of the First Millennium A.D. Considering Shurovo Burial as an Example (Materials and Interpretation)**

**Ekaterina Kleshchenko** (IA RAS, Municipal budget organization "Kolomna Archaeological Centre", Kolomna), **Alexander Syrovatko** (Municipal budget organization "Kolomna Archaeological Centre", Kolomna)

This paper is a result of a study of Shurovo cremation burials from the southeast Moscow region that date to the second half of the first millennium A.D. Shurovo burials are better known from this region. The goal of research is to define the specifics of the cremation of the human body and its deposition for identifying various burial traditions and different stages in the funerary process. During the study of cremated material we apply a synthesis of anthropological methods, forensic science techniques and data regarding the influence of fire and high temperatures on bone. During the examination the number of bone fragments, colour, weight, and presence of deformation cracks were taken into account. The data obtained was correlated with age and sex of buried persons and the presence or absence of animal bones. This study permits us to detect variability in the funeral rite of the Shurovo region. Shurovo burials present two different-burial treatments that differ with time: burial within a mound (VI-VII A.D.) and ground burial (the end of VIII A.D. - early X A.D.). Analysis of bones from burials demonstrated differences in the ritual burning of the body in the funeral pyre.

### **The Dead Transformed. An Archaeothanatological Analysis of Stone Age Burials at Zvejeniki, Latvia**

**Liv Nilsson Stutz** (Emory University, Atlanta)

On the shore of Lake Burtnieks in Northern Latvia, Stone Age hunter-gatherers buried their dead over the course of several thousands of years, making it one of the largest assemblages of burials from this time period. This paper seeks to go beyond the static archaeological record and bring forward the dynamic processes of transformation of the dead that were an integral part of the mortuary practices. Through the approach of archaeothanatology, applied both to documentation from previous excavations, and in the field through new excavations, we can follow the transformation of the dead body/the human cadaver, into a new being to be disposed of and incorporated into the ancestral ridge. The study allows us to discuss the ritual practice of transforming of the body, the fluid identity of the dead, their continued presence in the ground after burial, the memory of the dead and the attitudes and actions of the living in their eternal presence.



## **T05S009 - CONNECTIVITY IN THE ANCIENT BLACK SEA**

**Organizers: Mariya Ivanova** (University of Heidelberg, Heidelberg), **Alexander Bauer** (Queens College, CUNY, New York), **Owen Doonan** (California State University, Northridge)

The Black Sea is divided by long-established linguistic and cultural boundaries, yet pulled together by overlapping resources and historical ethnic entanglements. Since ancient Greek times the region has been often conceptualized as a zone of confrontation between contrasting lifestyles and political systems. Given these persistent traditions of division, it can be a great challenge to understand the Black Sea as a unit in archaeology and history. Yet in spite of those challenges, a view of the region as an integrated and interacting one, in some periods more than others, is increasing in salience. The aim of our session is to interrogate the idea of the Black Sea as an integrated cultural landscape from prehistory to the Crimean War. The diachronical perspective will allow us to sketch patterns of connectivity and explore long-term trends in interregional interaction. The focus will be on exchange and mobility as attested through the distribution of resources and products, spread of practices and the movement and interaction of individuals.

## **ORAL PRESENTATIONS**

### **Plumbing the Inhospitable Depths: A Critical Perspective on the Archaeological Impact of the Black Sea Flood Hypothesis**

**Peter Bikoulis** (University of Toronto, Toronto)

The Black Sea Flood hypothesis states that the catastrophic flooding of the Euxine basin, resulting in the formation of the Black Sea, had major impacts on early Holocene peoples who lived on the lake margins. Proponents have asserted that



such a calamitous event caused massive population displacements and migrations. More theatrically, it is believed to have been the historical kernel for deluge narratives found in numerous literary texts in southwestern Asia, and especially Noah's flood in the book of Genesis. Within Anatolian prehistory, the flood hypothesis is occasionally invoked as a primary explanation for the lack of early Holocene occupations in the Black Sea region. Namely, it is asserted that Neolithic sites are now submerged beneath the current water levels of the Black Sea. While sensationalist, this hypothesis seeks to explain why there are so few (none) indisputable Neolithic settlements in the entire Black Sea region. This paper presents the results of spatial analysis using both bathymetric data from the Turkish Black Sea and prehistoric site distributions. I argue that the Black Sea flood hypothesis is no longer viable as an explanation for why there are no early Holocene settlements in the region.

### **An Elusive Transition: The Spread of Farming in the Black Sea Littoral**

**Mariya Ivanova** (University of Heidelberg, Heidelberg)

Farming spread quickly along the coasts of the Mediterranean by the start of the 6th millennium BC. The Black Sea, in contrast, seems to have remained marginal to the initial farming dispersal. The coastal habitats of the Black Sea, with a few exceptions, are not favourable for simple agriculture based on cereals (wheat and barley) and domestic ungulates (primarily ovicaprids). This region belonged to an arc of rich „mesolithic“ environments on the periphery of the early farming world, which A. Sherratt termed “the Outer Europe”. The spread of farming to these heartlands of hunting, fishing and foraging communities was a slow process of adoption rather than colonization. In this paper, I explore the different local trajectories of the elusive farming transition in the 7th and 6th mill. Black Sea littoral.

### **“They Came from Thrace”: Reconsideration of the Ideas about the Origin of the Chalcolithic Culture along the Bulgarian Black Sea Coast**

**Krassimir Leshtakov** (Sofia University, Sofia)

Recently an amount of new evidence has been collected by field explorations in the littoral zone of Bulgaria. Several important issues wait for a profound discussion: new evidence for a LN metallurgy, dense settlement network, and the fact that the LN layers are often recognised beneath the Chalcolithic ones at the tell-sites. The last indicates a continuity in the settlement life and the culture in general. Thus, the proposed picture resembles that in Upper Thrace, where Karanovo III-IV layers preceded those from Karanovo V (ECh) in the stratigraphic sequence. At the same time, the old hypothesis about the movement of ECh population from Upper Thrace to the north of the Stara planina mountain as a dominant factor in the formation of local ECh cultures needs a serious reconsideration. This hypothesis aimed to explain the sophisticated architectural schema of some settlements and the high level of every-day life. Now we have sufficient evidence at our disposal to claim for the existence of vital LN groups with large houses, elaborated settlement plans, prestige items and affinity to copper metallurgy. They could be proposed as the principal agents in the historic development at the expense of the role of external influences.

### **The North-Eastern Black Sea Cultural Province in the VI - II millennium BC**

**Viktor Trifonov** (Institute for the History of Material Culture St. Petersburg, St. Petersburg)

The North-Eastern Black Sea Cultural Province of the VI – II millennium BC is a cultural phenomenon in the Western Caucasus which developed in the context of sub-continental contacts. It was one of few a cultural provinces on the Black Sea rim. Before the 1st millennium BC, all of them had predominantly inland rather than coastal or maritime contacts and never formed any kind of Circum-Pontic cultural formations. The history of the NE Black Sea province begins from the end of regional cultural gap between epipaleolithic – mesolithic sites and “neolithic” sites. The farming in the NW Caucasus was adopted in the relatively short period between the VI – V millennium BC, when the introduction of a new subsistence pattern, based on pig-breeding and gardening was stimulated by climate improvements, and the increasing spread of the deciduous forest from the NE Anatolia to NW Caucasus. That was a secondary colonization of a considerably depopulated area. In the IVth millennium BC the foothills settlers of the Maikop culture and the highlanders of the Darkveti-Meshoko culture coexisted until the end of both traditions and the arising of the Dolmen culture, which was responsible partly for the origin of the Novosvobodnaya aspect and the wide use of dolmens until the end of the IInd millennium BC.

### **What is the Kemi-Oba Culture in the Black Sea Steppe: Phenomenon of Burials in the Stone Cists with Painted Walls**

**Yuri Rassamakin** (Institute of Archaeology of NAS of Ukraine, Kiev)

The author presents the unique burials in the mounds in the Black Sea Steppe and Crimea dated of the Early Bronze Age (3000/2900 BC - 2500/2400 BC). These burials occurred in the stone cists with painted walls in red, black and white colors. They are named in the literature so-called Kemi-Oba culture according to mound “Kemi-Oba” in the Crimea excavated in

1957 by A.A. Shchepinskiy. Author considers two different regions of distribution of these burials, the origin of the rite, “the architecture” of cists, relative and absolute chronology and the problems of the cultural determination of cists. The author also focuses on the problems of the interpretation of drawings on the walls of cists. They are made in a geometric style, but they have the complex compositions from different elements.

### **The Black Sea and the Black Sea World in the Age of Handmade Pottery**

**Alexander Bauer** (Queens College, CUNY, New York)

At the beginning of the Early Bronze Age, a new distinctive handmade pottery tradition seems to appear among several communities around the Black Sea. What this shared pottery style means and why it appeared at that time is difficult to know precisely, but recent archaeological attention to pre-Greek coastal cultures around the region is expanding our understanding of these early periods. Analysis of pottery-making techniques employed across the Black Sea region during the Late Chalcolithic and Early Bronze Age suggests the emergence of shared ceramic technologies at this time. Such a “community of practice” was likely part of a larger “constellation of practices” distributed across expanding Black Sea maritime social networks, and allows us to identify a phase of Black Sea unity two millennia before the colonial networks of the 1st millennium BC.

### **The Black Sea and the Aegean in the Late Bronze Age**

**Susan Sherratt** (University of Sheffield, Sheffield)

Since the early 20th century, when A.H. Sayce acquired a terracotta animal figurine in Samsun, inscribed with what Arthur Evans believed to be Linear A, it has often been taken for granted that during the Late Bronze Age there were direct maritime connections between the Aegean and the Black Sea, via the Hellespont, the Sea of Marmara and the Bosphorus, reflected in the legend of Jason and the Argonauts which many have believed had its origins in Mycenaean times. More concrete evidence for this has been seen, for example, in finds of stone anchors, copper ingots, double axes and occasional swords in the western and northern Black Sea and (somewhat more contentiously) in a handful of Mycenaean stirrup-jars and flasks from the Hittite site of Maşat Höyük, and in the opposite direction in such objects as incised bone cheekpieces of Pontic steppe type in the Aegean and a stone ‘sceptre’ of probable western Black Sea origin on the Uluburun wreck. This contribution revisits (yet again) the old question of maritime connections between the Aegean and the Black Sea in the Late Bronze Age, and poses the related question of when sailing ships first came into use in the Black Sea.

### **Rural Hinterlands in the Black Sea during the Fourth Century BC: A Comparative Perspective**

**Owen Doonan** (California State University, Northridge)

The fourth century BC was one of transformation in the Black Sea region. A network of Greek colonies had solidified trade and political relationships in the maritime theater by the beginning of the century. Persian power became more pervasive but then fell and was replaced by a patchwork of Hellenistic kingdoms by the end of the century. Most importantly, the expansion of Black Sea kingdoms in the north (Scythian, Bosporan), west (Odrysian) and east (Colchis) established the classic Black Sea formation of heterarchical power distribution connected by a colonial trade network. Extensive and more recent systematic archaeological surveys carried out in the northern and southern coastal areas of the Black Sea permit us to develop comparative models for the impact of these regional scale transformations on local hinterland communities. General trends suggest an intensification of development in rural hinterlands during this period. This paper will focus on the results of recent surveys in the hinterlands of Sinope (Turkey), Nymphaeum and Theodosia (Crimea) in order to compare the changing rural dynamics under contrasting local political conditions. By investigating emerging patterns of connectivity within these hinterlands this study sheds light on the development of the Black Sea as an integrated economic unit.

### **Samothracian Networks: Gis, Epigraphy, and Connectivity at the Greek Gateway to the Black Sea**

**Sandra Blakely** (Emory University Dept of Classics, Atlanta)

This paper examines the role of affiliation with the mystery cult of the Great Gods of Samothrace in sustaining the networks among the Greek cities of the Western Black Sea, from Olbia to Odessos; in connecting those cities with the Greek networks beyond the Bosphorus; and in enabling mediation with the Thracian elites in inland centers. Samothracian affiliation was articulated through the civic institutions of *theoria* and *proxenia*, recorded on the island itself; through local priesthoods, festivals and shrines in participating cities; and through traditional narratives, both mythic and legendary. The promise of initiation was safety in sea travel, a pragmatic goal greatly facilitated by inter-city cooperation, information sharing, and mutual acceptance of the legal counters to piracy which *proxenia* provided. A GIS database allows geospatially oriented storage and analysis of the data relevant to the local responsiveness to these needs. Evidence suggests that the local realities of Samothracian gods in the Western Black Sea differed in significant ways from these articulations elsewhere. These

index the cult's capacity to create connections between Greeks as well as with their local trading partners, and suggest that these connections relied upon the responsiveness of the Samothracian symbols to regional traditions.

### **Some Observations on Battle Scenes on the Attic Figured Pottery: Impulses by the Trade Relations with Black Sea in the 4th Century B.C.**

**Reyhan Şahin** (Uludağ University, Bursa)

The most common battle scenes on attic figured vases in the Archaic Period until the end of the 5th century B.C. were Centauromachy, Gigantomachy and Amazonomachy. During the 4th century B.C. the demand from Bosporan Kingdom on the North shore of Black sea determined the repertoire of battle scenes on the red figured Vases widely. In this period Grypomachy, Geranomachy and conflict with Sphinx of Thebes became very popular. On the other hand Centauromachy and Gigantomachy were almost disappeared. The main aim of this presentation is to outline the changes in perception accordingly in iconography of Battle scenes in the course of time. Therefore the transformative impulses, which can be observed due to closer relations between Attica and the Bosporan Kingdom in the 4th century will be examined. The obtained data will provide some informations about the differences in cultural perceptions between Attica and Black Sea Shores and therefore about in which extent we can refer an another culutural unity on the borders of Greek world.

## **POSTER**

### **Orgame-Argamum – A Graeco-Roman Harbour on the Western Black Sea Coast: Archaeological and Archaeozoological Researches in the North-Western Area**

**Stanc Margareta Simina** (Alexandru Ioan Cuza University of Iaşi, Iaşi)

The ancient Greek colony and later Roman town Orgame/Argamum lies on the Razim Lake shore in Dobrudja, SE Romania. During the Roman period the city was one of the urban settlements of the province Moesia Inferior and of the later Scythia province. Archaeological researches undergone improve the knowledge of the city urbanization and its connections with the Pontus. Apart from close connections with far distances regions (Asia Minor, Aegean, North Africa), later province Scythia had close connections with Pontic regions. Argamum acts like a gateway for imports coming from these regions, and the pottery assemblages proves these connections. Recent fieldwork provided results about the trade routes and import centers from the eastern Pontus and Aegean. The paper will focus on incoming goods attesting the seaborne commerce, as well as all available connections of the late Roman and early Byzantine town across the seas. Archaeozoological approaches offered evidences of diet, importance of husbandry, hunting and fishing in this settlement in the Roman and Byzantine periods. The discovered faunal remains allowed a comparative reconstruction of the landscape and the subsistence practices. This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS-UEFISCDI, PN-II-RU-TE-2011-3-0146.



## **T05S010 - A MATTER OF TIME & SPACE: ADDRESSING THE TEMPOROSPATIAL VARIABILITY OF COLLAPSE**

**Organizers: Elise Luneau** (Deutsches Archäologisches Institut – Eurasien Abteilung, Berlin), **Keir Strickland** (Department of Archaeology, University of the Highlands & Islands, Orkney College, Orkney)

At this vertiginous time of increased global instability, climate change, and resource depletion, archaeology offers unrivalled potential to examine the causes, mechanisms, and processes of societal transformation and collapse. This examination is well under way in North America, with major publications spanning the last 25 years; from Tainter (1988) and Yoffee & Cowgill (1988) to more recent works by Allen et al. (2003), Diamond (2005), and Schwartz & Nichols (2010). However, European archaeology is yet to fully engage with this discussion, with collapse studies instead limited to individual or isolated examinations of polity specific “collapse”. This session offers a chance to bring together diverse regional and temporal foci and theoretical perspectives to engage with questions of time and space in relation to societal transformation and collapse. In particular, how do we differentiate between collapse and transformation? In relation to this question, special attention will be paid to the temporospatial aspects of societal collapse, examining rate and linearity, along with the spatial variability of change (regionalisation, core/periphery, ecological complexity, etc.). Finally, we will also discuss the difficulty of identifying prime causal factors of collapse and the inherent problem of diachronic precision in differentiating between cause and effect in collapse.

## **ORAL PRESENTATIONS**

### **Questions of Time and Space in the Study of “Collapse”**

**Elise Luneau** (Deutsches Archäologisches Institut – Eurasien Abteilung, Berlin), **Keir Strickland** (Department of Archaeology, University of the Highlands & Islands, Orkney College, Orkney)

This paper will act as a kickboard for the session, by laying out some of the methodological and theoretical challenges

facing the archaeological study of so-called collapse and sociocultural transformations. The adequacy between theories, amply elaborated by North American archaeologists and anthropologists for instance, and their application from material remnants is still problematic. Evaluation of transformations is still limited by difficulties in deriving sufficient and pertinent data (in quantity and quality) to study the mechanisms and the conditions of change across both time and space. Moreover, the terminal stages of societies frequently suffer from a lack of attention in the field. “Collapse” will be addressed, in particular by time and space as key aspects in the study of transformative processes (rapid or long transformations, rates of change). Furthermore, the formation of high-resolution chronologies is also critical to the identification of causal chains of events, and to the avoidance of confusing cause with effect. Spatially, the paper examines the connections between the core and the periphery as mechanisms for change and the frequent differentiation in transformation across larger areas. This introduction highlights the temporospatial challenges that we face in the archaeological study of sociocultural change and transformation of past societies.

### **The Semiotics of Collapse**

**Orri Vésteinsson** (University of Iceland, Reykjavík)

The dramatic quality of the metaphor “collapse” (more than ‘decline’, ‘fall’ or boring old ‘change’) reflects the fascination people have with catastrophic failure – especially the notion that whole societies can break down or even stop existing altogether. Under ordinary conditions all societies lurch from one crisis to the next and our propensity for hyperbole tends to characterize such problems in the starkest terms. For that reason terminology is usually not a very good guide to severity or impact: it is possible to have a family crisis, a financial crisis and a climate crisis but it is obvious that these will be quite variable in their effects. Things failing or coming to an end are often labelled as collapse and while this can be justified semantically it conflates what is in reality a variety of developments, often neither transformative, significant nor, indeed, terminal. In archaeology the term ‘collapse’ has been used liberally to describe crises, shocks or reversals in historical developments and while this has drawn attention to important issues it also clouds what are in fact different matters. Drawing on cases from the North Atlantic this paper seeks to put archaeological collapse in its semiotic place.

### **Entropy, Individualism and Collapse**

**Shelley Hartman** (Carleton University, Ottawa)

Thucydides and Polybius in their Histories described the repetition of human behavior and the cycles of civilization. However, time was linearized around the 4th century such that, by the 1980s, Tainter dismissed as “mystical” life-cycle models for large cultural entities. He advanced a theory rooted in the Western economic primacy of infinite growth. Unfortunately growth is not infinite. This paper focuses on the principal causal factor of collapse: population expansion and resultant resource depletion. Multiple disciplines have drilled research wells for sixty years; now is the time for synthesis and Archaeology is the single best field for knowledge consolidation. Humans are not special and complex human systems manifest characteristic elements. The function of telomeres demystifies mortality (A. Olovnikov 1973). The geometric principle of linear straightness explains human temporal myopia. Self-organizing criticality, pioneered by physicist Per Bak (1987), illustrates why civilizations emerge as managerial responses to population pressure. The work of chemist Ilya Prigogine (1957) suggests that individuality precedes collapse. The laws of thermodynamics make comprehensible Tainter’s use of the economic term “decreased marginal returns”. Correlating these with allied factors results in a collapse model which appears elastic, scalable and predictive, and which coincidentally revitalizes Mommsen’s “cycle of historical evolution” (1894).

### **Tragedy of Collapse or Triumph of Transformation? – Thoughts Regarding the Theoretical Approach to the Empirical Lack of the 7th-9th Century Settlements in Southern Scandinavia**

**Jesper Hansen** (Odense City Museums, Odense)

This paper focuses on the theoretical and conceptual approach of handling the widespread empirical lack of the 7th-9th century agrarian settlements in Southern Scandinavia. The empirical lack has for almost a century been a subject of great attention among Scandinavian archaeologists and historians. Scholars have basically been divided into two groups; those who see the absence as an empirical articulation of collapse and crisis and those who deny that point of view seen in the emerging, although vague, light of Viking Age Scandinavia. In any case the empirical data is well suited for illustrating the general theoretical challenges in distinguishing “tragedies” of collapse from triumph of transformation.

### **United We Fall?: Socioeconomic Interconnectivity and Its Consequences in the Early Bronze Age**

**Adam Schneider** (Department of Anthropology, University of California, San Diego)

The late 3rd millennium BCE was a period of profound crisis for many Old World societies. While the most dramatic example of this phenomenon is the collapse of the Akkadian Empire in Mesopotamia, many other polities also experienced significant (and often violent) upheavals during this period. There has been considerable discussion about the causes of

this phenomenon – much of it debating the centrality of climate change as a primary cause of civilizational collapse. Comparatively less attention has been paid, however, to the weakening at this time of existing long-distance networks of trade and interaction, which had made possible an unprecedented spread of goods, ideas, and economic growth across the Near East and much of the Eastern Mediterranean, as another potentially important causal factor for the upheavals that took place during the final centuries of the third millennium. In this presentation, I will argue that the interconnectedness of many Early Bronze Age polities in the Eastern Mediterranean, and their mutual socioeconomic dependence upon these trade networks, helped sow the seeds of the late 3rd millennium crisis, influenced social responses to it, and increased the susceptibility of polities to experiencing significant disruptions across those same networks.

### **Contingencies of Climate Change : Environmental Migration in Late Holocene South Asia and the Biocultural Impacts of Staying Behind**

**Gwen Robbins Schug** (Appalachian State University, Boone)

The semi-arid monsoon climate in South Asia was established in the middle Holocene. However, this challenging environmental milieu is also punctuated by evidence for more rapid climate change events, which have been associated with profound impacts on human communities. This paper examines human-environmental interactions in urban and rural communities occupied during the late Holocene, with a goal of reconstructing the broader bio-cultural consequences of different strategies for coping with climate change. At the height of the Indus Civilization (2200-1900 B.C.), social and economic opportunities were the principal forces driving rapid urbanization; but climate and ecological changes, culture contact, and economic disruption after 1900 B.C. brought the unique set of challenges that characterized its collapse. A thousand years later, population growth and environmental changes co-occurred in the context of agrarian villages throughout west-central India. In both cases, most of the settlements were abandoned. Profound demographic and health consequences accompanied the re-organization of human communities that persisted. This paper explores the consequences of different bio-cultural strategies for coping with environmental change in urban versus rural communities. Biodemographic data from the human skeletal remains also suggests implications for South Asian populations facing similar climate changes today.

### **The Fall of the Oxus Civilization (Final Bronze Age, Central Asia): Review of the Relationship between Time and Space in the Evolution Processes**

**Elise Luneau** (Deutsches Archäologisches Institut – Eurasien Abteilung, Berlin)

After a brilliant peak phase, the Oxus civilization underwent major shifts in the whole social sphere, during the Final Bronze Age (ca. 1750 - 1500/1450 B.C.) before letting place to a new complex in the Early Iron Age. These changes are all perceived as breaks or damages resulted from a global process of “collapse”. On the contrary, the study of the transformations of this society highlights various processes of socio-cultural evolution and different transitional phenomena. The regionalization of the society is obvious during the latest phase of the Oxus civilization, and different rates of evolution are noticeable in the diverse social spheres. Moreover, phenomena of resilience do not allow considering the evolution of the Oxus civilization as a continuous decay. Questions can be raised : is it possible to locate a geographical center for the shifts, identify different regional evolutions, and define more precisely the temporal process of changes ? In addition to the question of the definition of collapse, the paper will focus on these spatiotemporal aspects of the profound changes, which have occurred in southern Central Asia during the Final Bronze Age.

### **The State of the Collapse Question in Proto-Historic Iran and the 2nd Millennium BC Dark Age**

**François Desset** (University of Tehran, Tehran)

Iran, Central Asia and Indus valley are characterized in the 2nd millennium BC by an important urban decline, corresponding to the transition between the brilliant 3rd millennium civilisations and the Iron Age ones. The Iranian case will be particularly under scrutiny here, focusing specially on the chronology and the places of this phenomenon in order to catch a glimpse of one of the rare fields where archaeology may be efficient : the rhythms of the sedentary occupation of a territory..

### **Transformation of Crete at the End of Bronze Age and Beginning of Iron Age**

**Martina Kovarikova** (Charles University, Prague)

The end of Bronze Age is often viewed as a time of collapse in the eastern Mediterranean, although the view is starting to change as new data emerges from archaeological surveys and excavations conducted on the island. In my paper I will present an example of the changing view of the transitional period from the archaeological data from Crete during the transformation from the end Bronze Age to the Iron Age. I will focus primarily on 2 sets of data – I will present the changes in settlement patterns by comparing MM and LM IIIA to LM III B periods in comparison with the LM IIIC and early Iron Age as well as changes occurring in the settlements from various parts of the island. I will briefly also summarize the continuity and change in the material culture as well as burial customs. Finally I would in few points compare the data from Crete to



other parts of the Eastern Mediterranean, the Levantine coast, Cyprus and mainland Greece. In conclusion I will propose a model for the transformation of Crete at the Bronze Age to Iron Age transition as well as I will place Crete within the context of the Eastern Mediterranean, although this model may change when new data become available.

### **Social Transformations and Their Temporospatial Variability in the Bronze Age “Nuragic Society” of Sardinia (Italy). An Interdisciplinary Approach in the Marmilla Region**

**Maria Giuseppina Gradoli** (University of Leicester, Leicester), **Emily Holt** (Department of Anthropology, Oberlin College, Ohio), **Mauro Perra** (Civico Museo Archeologico di Villanovaforru, Sardinia)

An interdisciplinary research has been carried out in the Marmilla region with the aim of studying the sequence of social changes anticipating and accompanying the first appearance of nuraghi towers during the Middle Bronze Age and their later complexity during the Recent/Final Bronze Age and the First Iron Age (1600-750 BC). Major phases of growing settlement complexity are studied in relation to nuragic domestic pottery, looking deeper beneath the apparent ‘static cultural homogeneity’ of these assemblages through continuity and change in pottery technology using pottery petrology, the concept of ‘chaîne opératoire’, raw material provenance analysis and the experimental archaeology to investigate whether observable architectural changes were accompanied by similar ones in the way pottery was manufactured, especially during the most important transitional periods. Subsistence strategies are being evaluated from an environmental archaeological perspective, using paleobotanical remains, phytoliths, wood charcoal, and fauna.

### **Roman Roads in Medieval Landscape: Questions of Continuity and Change in Western Hungary**

**Magdolna Szilágyi** (Medieval Studies Department, Central European University, Budapest)

In my paper I investigate the afterlife of Roman roads in medieval Western Hungary. After the Roman military forces and administrative apparatus retreated from the province of Pannonia in the first half of the fifth century, the Roman architectural and infrastructural constructions were used by the Romanized local population and Germanic peoples arriving in region. However, in lack of any central political power that would have continued building activities and maintenance, these constructions started to decay slowly. It was only centuries later – with the foundation of the Hungarian State – that centrally controlled constructions and spatial organizational activity began again in the Carpathian Basin. In my paper I compare the principles of Roman and medieval territorial organization by the example of roads. Using archaeological, written and cartographic evidence I address the following questions: How did natural and human geographical features determine the direction of roads in the antiquity and in the Middle Ages? To what extent was the settlement system and road network of medieval Western Hungary affected by the legacy of Roman Pannonia? To what extent and where were Roman road remains used in medieval times for communication, as boundaries of landed properties, and which roads became completely abandoned?

### **“Should I Stay or Should I Go? Urban Mobility as an Adaptive Strategy in Early Mediaeval Sri Lanka”**

**Keir Strickland** (Department of Archaeology, University of the Highlands & Islands, Orkney College, Orkney)

The 11<sup>th</sup> century abandonment of Anuradhapura, and the subsequent southerly relocation to a new capital at Polonnaruwa, has been long portrayed as a collapse. The city, in all of its constituent parts, abandoned in the face of the South Indian, Hindu, aggression of the Chola Empire; the monumental palaces and temples of the city left ruined and drowning beneath the jungle tide, the intricate system of tanks and canals choked by weeds and silt. Certainly, this is the narrative of the Mahavamsa, and the narrative that has become established even within the study of mediaeval Sri Lanka. However, far from being the episode of violent collapse that this has been portrayed as, I argue that the move from Anuradhapura to Polonnaruwa was in fact a deliberate decision that not only reversed centuries of alienation of land, power and wealth by the Buddhist monastic orders, but also refreshed an economic hinterland that had reached maximum efficiency of exploitation and had reached a stage of declining marginal returns. This move was thus, not so much a collapse, but a deliberate adaptive strategy that enabled the avoidance of true “collapse”.

## **POSTERS**

### **Historicising Resilience and Vulnerability: Historical Disasters and the Absence of Systematic Comparisons**

**Daniel R. Curtis** (Utrecht University, Utrecht)

A limitation of the ‘collapse’ literature is that it remains focused on the level of ‘grand civilisations’, in periods where documentary evidence is sparse or non-existent, and thus difficult to empirically verify or test bold frameworks. Many scholars are unsure as to whether they agree with theses from the likes of Joseph Tainter or Jared Diamond because (a) they remained unconvinced by the basic historical evidence or (b) there is no systematic framework set up to actively test assertions. At the same time, other literature on societal collapse has the opposite problem of being too geographically localised – archaeologists spending vast amounts of time and money on excavating just a handful of settlements. The new discipline of ‘disaster studies’ may be best placed to solve this problem – though the field is in desperate need of histori-



cal perspective. Hypotheses are frequently about contemporary societies, and thus the long-term responses and consequences of disasters are not easy to discern. If scholars use a historical perspective, mostly this is a one-off experiment on an individual case. This paper calls for a new approach to collapse – less focused on exogenous conditions, and more on the intrinsic capacity of societies to cope with crisis. To do this, however, requires projects set up which are systematic comparisons between regions and societies – a middle ground between the macro and the micro.

### **Collapse in Late Bronze Age Greece and After**

**Guy D. Middleton** (University of Tokyo, Tokyo)

The Mycenaean collapse c. 1200 BC is well-known, and still attracts efforts to explain it. This presentation begins by offering definitions of collapse and clarifying what is meant when we talk of Mycenaean collapse. It will look at the timing of collapse and briefly explore the nature of the Postpalatial period. The Mycenaean collapse is often linked in time and space with collapse and change around the Eastern Mediterranean, especially through narratives of migration, and the movements and actions of the so-called Sea Peoples. This talk will examine this theme of mobility and migration, and offer some thoughts on the Sea Peoples and the Aegean.



### **T05S011 - A CRYSTAL FORMED OF NECESSITY – GIFTS, GOODS AND MONEY: THE ROLE OF EXCHANGE IN PROCESSES OF SOCIAL TRANSFORMATION**

**Organizers: Daniela Hofmann** (University of Hamburg, Hamburg), **Nicholas Wells** (Independent Researcher, Cardiff)

This session will explore the role of exchange as an agent of social transformation. Recent years have seen ample discussion on networks as a basic condition of human life, and on the role of objects in constituting identity and facilitating interaction. Here, we aim to turn the insights of these approaches back onto the role of objects in exchange transactions (including reciprocal exchange, gift giving and cash economies) and the way they are used to negotiate situations of (sometimes rapid) change. In particular, we will explore the following themes: • The changing role of objects within different spheres of exchange in a given society • How these changes are recognised in the archaeological record • The introduction of new items into already existing exchange systems and the wider socio-economic repercussions of such introductions The session is explicitly comparative in nature, so we invite contributions from all geographical areas and time periods (e.g. prehistoric exchange systems; the introduction of coinage in ancient economies or recent ethnographic contexts; the role of new exotic goods in the early modern European economy). Emphasis will be placed on detailed case studies which will explore the interrelationships of exchange with social transformation.

### **ORAL PRESENTATIONS**

#### **From the Aegean Sea to the Paris Basin. *Spondylus* during the Process of Neolithisation**

**Arne Windler** (Institute of Archaeological Science Bochum, Bochum)

The distribution of *Spondylus gaederopus*, a shell from the Mediterranean Sea, is one of the earliest examples for long-distance exchange in Europe and is associated with the process of Neolithisation during the late 6th Millennium BC. Artefacts made of *Spondylus* can be found throughout Europe, from Greece to Central Germany and from the Ukraine to the Paris Basin. Although the shell has been in the focus of prehistoric archaeology for nearly 130 years, there is still an ongoing debate about the sources, meanings and modes of exchange. The distribution is often mentioned as a prestige good or gift exchange par excellence, but we have to be aware of a premature categorisation. Not only Polanyi's trichotomy of reciprocity, redistribution and market exchange can be applied to this case study, but also alternative categorisations from economics, anthropology or sociology need to be taken into account. One alternative model was developed by Douglass C. North – he distinguished between personal and impersonal exchange with and without third-party enforcement. This model can be applied to enlighten the process of Neolithisation, its consequences and the role of *Spondylus* exchange in Bulgaria during early 5th Millennium B.C.

#### **Amber, Networks and Exchange: Material and Social Transformations in Northernmost Europe 4000 BC**

**Morten Ramstad** (University Museum of Bergen, Bergen)

The Mesolithic-Neolithic transition in Northernmost Europe deals with material, social and economic transformations. This presentation will take as a starting point a relatively limited number of Neolithic amber objects from North and Mid-

dle Scandinavia found thousands of kilometres north of their natural deposits. A closer analysis of these amber objects and their association to other objects entering the Early Neolithic exchange networks seem to indicate new relationships between humans and the material world operating over wider parts of Northern Europe around 4000 BC. It will be argued that the handling and exchange of amber can not only be taken as an outcome of new social and material worlds, but more importantly represents a new material rationality and logic.

### **The Introduction of Coinage in Ancient Thrace: A Coincidence or a Logical Consequence?**

**Evgeni Paunov** (Independent Researcher, Sofia)

This paper explores the socio-cultural, economic and political reasons that led to the introduction of coinage in ancient Thrace. Its role and significance as a primary means of exchange will be highlighted in order to envisage the regional and inter-regional context. Since the Late Bronze Age various forms of pre-monetary exchange were used in Thrace – bronze ox-hide ingots, cast bronze axes, and others as markers of active trade and payments. With the introduction of minted coins in the late 6th c. BC new market rules came into being and changed the nature of the exchange system. Following commercial interests the coins first penetrated coastal and low-land areas of South Thrace. Since ca. 530-520 BC coins began to be made by the Greek cities along the North Aegean and Propontis. Not long after, the West Pontic colonies copied the new fashion. In this regard the proposed paper will discuss the relevant factors that initiated the introduction of coinage in Thrace. So, was it a result of foreign influence (Persian) or it was a logical consequence of internal social and political developments?

### **Of Warriors, Chiefs and Gold. Coinage and Exchange in Celtic Society**

**David Wigg-Wolf** (Römisch-Germanische Kommission des Deutschen Archäologischen Instituts, Frankfurt)

When the peoples generally referred to as the Celts came into contact with the societies of the Mediterranean world in their role as mercenaries in the service of powers such as the Hellenistic kingdoms, Carthage and Rome, they encountered a new form of payment for their services: coinage. Some three centuries later the homelands of those mercenaries were using coin as a means of exchange that had many of the characteristics of „general purpose money“. However, this by no means implies that the Celts used coins in such a way from the outset. The forms of exchange in their own societies were very different. So how was coinage used by them, in particular when they began striking coinage themselves; and what effect did it have on existing forms of exchange? What was the relationship between traditional forms of exchange and the new medium? Did the gradual appearance of “general purpose money” change Celtic society?

### **New Wealth from an Old World: Glass, Jet and Mirrors in the 16th Century Indigenous Caribbean**

**Joanna Ostapkowicz** (National Museums Liverpool, Liverpool)

One of the most momentous cross-cultural collisions occurred in the Caribbean in 1492, heralding a period of rapid change in both “New” and “Old” Worlds. During the early years of the colonial period, when new relationships were being established, material objects became active agents in the interactions between the indigenous Taíno and the Spanish. The Taíno gifted the Spanish with objects that had significant meaning in their own world, in an attempt to enmesh the Spanish into their own socio-political and economic networks. In turn, the objects the Spanish exchanged entered into Taíno systems of value – glass and jet beads, mirrors and brass ornaments were integrated into high-value objects, such as the two surviving Taíno cotton sculptures that form the focus of this paper: a belt in the collections of the Museum für Völkerkunde, Vienna and a composite sculpture in the Museo Nazionale Preistorico Etnografico Luigi Pigorini, Rome. These pieces reflect the affluence of the caciques (chiefs) who commissioned them, and their ability to gain access to exotic material while re-interpreting them in culturally meaningful terms during a period of considerable cultural upheaval.

### **50 Years of Obsidian Characterization Studies in the Mediterranean and Near East**

**Robert H. Tykot** (University of South Florida, Tampa)

Since the introduction more than 50 years ago of chemical analysis for distinguishing obsidian sources and reconstructing trade and contact, much has been accomplished in the Mediterranean and Near East. The identification of obsidian at mainland sites coming from island sources as early as the Upper Paleolithic informs us about maritime travel capabilities, and infers pathways for the movement of other materials as well. Detailed studies of geological sources have been accomplished for the central Mediterranean and Aegean islands, the Carpathian basin, in central and eastern Anatolia, and in the Caucasus, and a variety of instrumental methods of analysis are able to attribute artifacts to specific sources and sub-sources. Importantly, the increased use of non-destructive methods, especially portable XRF, has allowed analyses of large assemblages within museums and storage areas, providing statistically significant data sets for interpretation. Examples of such research will be presented, addressing the quantity, quality, and accessibility of the sources; the regularity of long-distance mobility; selected use of certain subsources; and regional and intra-site variation in source utilization. Extensive obsidian data provides important perspectives on the socioeconomic nature of Neolithic and Bronze Age societies and their changes over time, while further research is needed in certain areas.

## **From Inalienable Object to a Commodity. Exchange of Amber in the Scandinavian Neolithic and Early Bronze Age**

**Anders Strinnholm** (The Museum of Archaeology, University of Stavanger, Stavanger)

The use and circulation of amber, like all other forms of material culture, undergoes changes over time. It is argued that the changing role of amber during the Neolithic and early Bronze Age cannot be attributed to a particular change in aesthetics or fashion. The transition from a votive deposit in wetlands and megaliths to a commodity equates to a changed view of amber's importance. The barter and sale of amber beads had become possible and, as objects, the beads no longer had the same significance; the symbolism had changed. Interest in amber seems to decrease at the end of the Neolithic and there is an observable decline not only in quantity, but also in the rich variety of forms. It is tempting to interpret this change as a result of a process by which amber went from being an inalienable object to a commodity that could be circulated throughout and exchanged over vast areas. Consequently, amber's symbolic properties decreased and the personal connection to the objects lessened. Amber changed from a symbol and token of relations to an exchange commodity.

## **Like Cattle for Copper, Girls for Glass Beads: Reconsidering the Trade Revolution in Southern Africa, 9th-17th Century**

**Raevin Jimenez** (Northwestern University, Evanston)

Southern African scholarship contains a contradiction regarding the expansion of long-distance trade networks among agropastoral communities. Archaeologists and historians stress the importance of cattle as a foundation for increasingly complex political economic institutions. But they tend to accept that once trade goods became available, emerging chiefdoms and states reoriented their political economies around participation in or control over trade without accounting for how or why trade goods became so highly valued, or what became of the social practices, relationships, alliances and identities based on cattle that previously underwrote the construction of communities. I argue that the unusually high degree of movement and interaction in southern Africa resulted in the emergence of regionalized systems of value associated with cattle, and the embodied status of young men and women, inscribed during marriage rites. Beginning in the 9th century, we see evidence of actors incorporating trade goods into marriage rites during bride payment exchanges and the marriage ceremony. These goods included copper beads and bangles from intracontinental sources, and later glass beads from the Indian Ocean. By reconsidering the worth of trade goods in light of pre-existing social values, I argue that we can bridge pre- and post-trade narratives of southern Africa.

## **The Coin Circulation in Thrace during the Early Hellenistic Period**

**Oya Yağız** (Mimar Sinan Fine Arts University, Istanbul)

The Hellenistic period came with its own dynamics and radical changes in the Antique world. The political structure was redesigned by the Hellenistic rulers. This period started with the end of the autonomous coin production of the Greek city-states after the Macedonian conquest. Some of these cities then started minting coins from precious metals for Hellenistic kings. Lifetime and posthumous coins of Philip II, Alexander III and of Lysimachus became the standard currency all over the Hellenistic world. However, some cities and local dynasts struck coins in their name. These coins were made mostly of bronze and they reflect the socio-economic structure of Thrace in the Early Hellenistic period.

## **When is Absence of Evidence Evidence of Absence? - The Abandonment of Coin Use in the North-Western Provinces of the Roman Empire**

**Nicholas Wells** (Independent Researcher, Cardiff)

The end of the 4th and the beginning of the 5th centuries sees a strange phenomenon in the north-western provinces of the Roman Empire: an ubiquitous and largely pervasive exchange mechanism simply disappears from the archaeological record. This absence of evidence has given rise to a fairly heated and protracted debate ultimately linked to narratives concerning the end of the Roman Empire as a whole. Of course, many archaeological and historical explanations have been deployed to rationalise this, ranging from the overtly political where the populace actively throw off the yoke of an oppressive and bureaucratic system, to a gradualist agenda where the use of coinage is seen to end over a period of time varying region by region. This paper will explore the changing nature of the Late Roman exchange system and investigate its subsequent modification and possible abandonment, focusing on the potential transformative aspects of such a major discontinuity. Special attention will be paid to examining similar occurrences in the historic past which will provide insight into the motivations and outcomes of this 'event'.



## **T05S013 - ARCHAEOLOGIES OF WAR(S) (1914-2014) AS THE FIELD OF THE ENTANGLEMENT OF LANDSCAPE ARCHAEOLOGY, CONFLICT ARCHAEOLOGY, MEMORY STUDIES AND...**

**Organizers:** **Anna Zalewska** (Institute of Archaeology, Maria Curie Skłodowska University, Lublin / Warsaw), **Armando De Guio** (Università di Padova, Dipartimento dei Beni Culturali: archeologia, storia dell'arte, del cinema e della musica, Padova)

The session foregrounds the materiality of memory of XX century wars, by investigating the relations between past and present, absence and presence, carriers and lapses of memory. During the last decade, within the archaeological discourse, appeared diagnosis: that 'no other kind of archaeology is so deeply and poignantly anthropological as the Great War archaeology and the archaeology of twentieth century conflicts' (Saunders 2004), and that the archaeology of superdestruction of life and matter initiated by World War One, can be seen as the 'archaeological therapy' (Gonzales Ruibal 2008). In our session we would like to discuss: • to what extent such opinions can be confirmed by the specific studies of material remains of the XX century wars; • how the complex and sophisticated interdisciplinary methods, such as (non)invasive 'landscape archaeology', can impact on materially mediated memory of wars; • in what sense the elaborated strategy of 'conflict archaeology' is / can be useful in 'archaeological therapy' understood as 'dealing with a traumatic past, bringing forward presence and managing conflicting memories'; • if the reasons and motivations of archaeological interactions with material remains and other issues connected to the First World War and to the subsequent XX c. wars are unarguable from ethical point of view?

### **ORAL PRESENTATIONS**

#### **Digging Memories**

**Franco Nicolis** (Archaeological Heritage Office, Autonomous Province of Trento, Trento)

"Archaeology is the search for fact, not truth. If it's truth you're interested in, Doctor Tyree's Philosophy class is right down the hall" (Indiana Jones and The last Crusade). This sentence is arguable but it lists a series of issues we have to deal with when we consider the archaeology of the contemporary armed conflicts. What is search? What is fact? What is truth? The Greek word for truth, *aletheia* means "without oblivion", which means that there is no truth without memory. But how many memories do we have? And consequently, how many truths could we have? Does an archaeological memory exist? And consequently, does an archaeological truth exist? And when memory is lost? Is the cold report "failed attack" in the Italian Army Archives more true than the "fact" that the remains of those soldiers are still on the battlefield? At this moment precisely, archaeology has to rebuild another, multivocal memory, through the search for facts, through the search for material spaces, through the investigation of the "social death of things" and people. At that moment precisely, archaeology is acting as a "material witness" (Harrison and Schofield) and is facing with its status of contemporary discipline.

#### **Palimpsest Landscapes: Conflict and Memory in the Soča/Isonzo Valley, 1915-2014**

**Nicholas Saunders** (University of Bristol, Bristol)

The Soča/Isonzo Valley on the Slovenian-Italian border is both physical place and symbolic landscape – a powerful embodiment of Europe's twentieth century military, political, and cultural transformation in microcosm. Between May 1915 and October 1917, an extraordinary First World War conflict landscape was created, at the cost of around 1.5 million casualties (dead, wounded, imprisoned). The resulting archaeological record is a well-preserved palimpsest of modern warfare and its complex enduring legacies. This talk will focus on the results of several years of preliminary evaluation of the valley, including archaeological interventions on Mt Mengore (Kuk), reconnaissance of Austro-Hungarian cemeteries on the karst landscape of the Carso, interviews with collectors of war memorabilia, and high-altitude evaluation on Mt. Batognica, some 2000 meters above the town of Kobarid (Caporetto). The project's anthropological approach conceptualizes at least 12 conflict-related layers of this valley landscape, which will be investigated in future research.

#### **The Rediscovery of a Forgotten Landscape of War: World War One Aerial Photography and Archaeological Propection in the Region of "Plugstreet Wood"**

**Yannick Van Hollebeeke** (Ghent University, Archaeology Department, Gent), **Birger Stichelbaut** (Ghent University, Archaeology Department, Gent), **Jean Bourgeois** (Ghent University, Archaeology Department, Gent)

Since almost a decade the Archaeology Department of Ghent University is specialized in the use of World War One (WWI) aerial photographs to survey the former battlefields and to develop an instrument to protect and manage the preserved WWI heritage. A methodology was developed to integrate these images into a geographic information system (GIS), allowing to study the landscape of war, consisting of defence systems and other military infrastructure built by the former belligerents, in its entirety. The aerial photographs are a unique source of information that give a detailed picture of the WWI landscape. However, they do not always give an indication of what is still preserved in the contemporary landscape.

In the municipality of Comines-Warneton (Belgium) non-invasive methods were used to study the preserved heritage of the First World War. An archaeological field survey was undertaken using mobile GIS applications to locate and register the WWI relics. In this contribution the methodology and results of this survey will be discussed. Especially the preserved relics of British origin in Bois de Ploegsteert and Bois de la Hutte will be emphasized.

### From a “Grandfather’s Archaeology” to an “Archaeology For Us”: Forensic Archaeology in the WWI Italian Front

**Armando De Guio** (Università di Padova, Dipartimento dei Beni Culturali: archeologia, storia dell’arte, del cinema e della musica, Padova), **Franco Nicolis** (Archaeological Heritage Office, Autonomous Province of Trento, Trento), **Carlo Baroni** (Dip. Scienze della Terra, Università di Pisa e CNR, Istituto di Geoscienze e Georisorse, Pisa), **Cristina Bassi** (Archaeological Heritage Office, Autonomous Province of Trento, Trento), **Elisabetta Mottes** (Archaeological Heritage Office, Autonomous Province of Trento, Trento), **Andrea Betto** (Arcsat s.n.c., Padova), **Nicola Cappellozza** (SAP Società archeologica, Mantova), **Cristina Cattaneo** (LABANOF Laboratorio di Antropologia e Odontologia Forense, Dipartimento di Morfologia Umana, Università di Milano, Milano), **Daniel Gaudio** (LABANOF Laboratorio di Antropologia e Odontologia Forense, Dipartimento di Morfologia Umana, Università di Milano, Milano), **Andrea Galassi** (UOS di Medicina Legale, ULSS N. 6, Vicenza), **Marco Gramola** (Comitato storico della Società Alpinisti Tridentini, Trento), **Siro Offelli** (Corpo Nazionale Soccorso Alpino e Speleologico, Stazione di Arsiero, Vicenza, Arsiero), **Maurizio Vincenzi** (Museo “1914-1918 La guerra sulla porta”, Pejo, Trento)

A century after the conclusion of the WWI, it is still rather common to find human skeletal remains appearing from the ground due to natural processes (such as erosion, or glacier melting) in the Italian Alps and Pre-Alps and pertaining to soldiers of the Italian Front during WWI. The growing practise of “relics hunting” by metal-detectors, sometimes perversely supported by local (regional) legislations, increases the number of threats and warnings. The aim of our “No more unknown soldiers” project has been to implement a flexible, multi-specialist (from remote sensing to forensic entomology) “protocol of intervention”, locally sensitive to the specific hosting context (from glacial environment to middle mountains, from formal burials to mass graves or abandoned corpses), involving best-practices in both the scientific and ethical domains for salvage and further management of human skeletal remains. The integrated approach has critically enhanced, among others, the chance of personal identification, and/or the possibility to reconstruct “a micro-history” of these individuals involving the specific death- event scenario. It has helped us also to enter the wider debate on WWI heritage from the most crucial “resolution” of real social actor: a “grandfather archaeology” (non-metaphorically for some of the authors) that could help us to build a multi-vocal and encompassing “archaeology for us”.

### Warscape Recognition: An “Intelligence” Path from Rethoric to Enhanced Realities and Eco-Cultural Resource Management

**Armando De Guio** (Università di Padova, Dipartimento dei Beni Culturali: archeologia, storia dell’arte, del cinema e della musica), **Franco Nicolis** (Archaeological Heritage Office, Autonomous Province of Trento, Trento), **Andrea Betto** (Arcsat s.n.c., Padova), **Luigi Magnini** (Università di Padova, Dipartimento dei Beni Culturali: archeologia, storia dell’arte, del cinema e della musica)

In our longstanding engagement in WW1 archaeology in the Italian Alps we have been investing substantial efforts in trying to implement the best techniques to cope with the complexities of warscape formation processes and to disentangle the cumulative/accretive and palimpsestic stages of their morphogenetic trajectory. An additional “not-so-strange attractor” has been the perspective of tracing the one-century long critical path of related “landscape of memory” formation processes. Some more recent advances in HiTech detection and simulation seem now to converge to a point where a progressively refined “synthetic” scenario (involving virtual/enhanced/mixed realities) could be assumed as an operationally acceptable proxy for our warscape target reconstruction. In such a respect, by simply processing the extraordinary range a WWI aerial photography, along with properly “augmented” Lidar-scapes, enriched with other principal imagery components (such as hyperspectral and Radar-scapes) and classified by expert/A.I. operators (e.g. OBIA, eCognition object/pattern/scenery recognition procedures), we could already offer some iconic instances of that capability: an “artificially intelligent” landscape (following self-construction/self-destruction “rules of nature” as well “human rules”), instead of acting as a de-humanizing device, or a risible war-game divertissement, is offering our “best practice” scenario to locate and simulate human war-behaviour at the changing, “operationally best” spatial, functional and social action resolution.

### A Hundred Years of Memory of the Great War in Western Ukraine: Case Studies of the Battlefields at Makivka and Lysonia

**Adrian Mandzy** (Morehead State University, Morehead)

Much of the Great War on the Eastern Front was fought in what is today Western Ukraine. The fluidity of the front, along with antagonistic policies of both the Austrian-Hungarian and Imperial Russian regimes toward the Ukrainian and Jewish



populations, significantly impacted the civilian indigenous populace. While religious and nationalistic overtones dominated the memorialisation of the conflict in the inter-war years, the events of WWII and the changed political climate did not allow public commemoration. By 1990, the actions of the Ukrainian Legion, a small unit of volunteers in Austrian service, became an important symbol in the establishment of non-Soviet Ukrainian identity. Following independence in 1991, two battlefield landscapes connected with the Legion, Makivka and Lysonia, epitomize the war. Unlike the overgrown fields of Zboriv and Lopushnia, where the governments of the Czech Republic and Turkey commemorated the actions of their countrymen by raising monuments, no statues of heroes stand at Makivka and Lysonia. Though various levels of selective memory are applied in memorializing these former fields of conflict, the Makivka and Lysonia battlefields provide a mechanism to deal with the subsequent 20th century genocides and traumas.

### **Landscapes of Conflict and Commemoration: Non-Invasive Survey of the Gallipoli Battlefields**

**Jessie Birkett-Rees** (La Trobe University, Melbourne)

As we approach the centenary of the WWI conflict at Gallipoli, the Arıburnu area of the 1915 battlefield is being studied by the Joint Historical and Archaeological Survey (JHAS), a collaborative historical and archaeological project initiated by the governments of Australia, New Zealand and Turkey. This paper presents the results of non-invasive techniques used to map and analyse this archaeological landscape of conflict and commemoration. Gallipoli is a historic site and a significant place in the national narratives of Australia, New Zealand and Turkey; it is not immediately thought of as an archaeological landscape. The peninsula in fact has an expansive history, as a meeting point of cultures from the earliest times and as a landscape clearly associated with conflict and commemoration since the earliest written histories. I highlight the ways in which the recent survey results and the flexible framework of GIS afford a broader range of spatial and temporal perspectives on the Gallipoli peninsula. Places which hold iconic status from 1915, including Lone Pine/Kanlı Sirt and Suvla Bay/Anafarta Koyu, reveal archaeological evidence of much older human histories, providing a compelling context to the memorialisation of the 1915 conflict.

### **In Search for the Fallen Soldiers of IR59**

**Anna Gawlik** (Jagiellonian University, Krakow), **Marcin Czarnowicz** (Jagiellonian University, Krakow)

In spring 2013 archaeologists from Jagiellonian University were informed that in the village Kowary local farmer plough the barrow revealing the human bones which he believe that belongs to the fallen soldiers of Austro- Hungarian and Russian armies who fought in this area in November 1914. The barrow itself was dated to the Early Bronze Age but locals believed it was used later to bury the fallen 1963 insurgents and possibly other. Archaeological prospection was strengthen by the oral history and search through the written sources and maps of the K.u.K. Army. An extensive amount of work was done to recreate the landscape of the 1914 year. During our work we were able to confront our knowledge with the memories of the local society bringing back some forgotten aspects of the local past to life again. An important thing was observed. Great War by many was recognized as a “war of Poland’s invaders” and as such forgotten or even denied. In case of Kowary our excavations were a kind of “archaeological therapy” for local society.

### **Archaeological Heritage of the World War I in Latvia: Issues of Research and Preservation**

**Andris Sne** (Faculty of History and Philosophy of the University of Latvia, Riga)

The military actions of the World War I heavily influenced present-day territory of Latvia what then was part of the Russian Empire. After German campaign in 1915 western part of Latvia fell under German rule and the German and Russian front line was established at the banks of the River Daugava for almost two years. The Latvian military formations (riflemen) were organized within the Russian army, too, and they became involved in several battles during the war in territory of Latvia. The archaeological heritage of the World War I in Latvia includes both military (battlefields, trenches etc.) and industrial (railways etc.) sites in large number but active forest logging in the last decades had posed threats to sites’ preservation, as usually these are not included in the List of state protected monuments. These are only some sites that have been archaeologically researched (while the evidence of war is present almost at every excavation in the region) but only one site was also later reconstructed for museum purposes. There shall be distinguished several components that influence public (and other stakeholders’) attitudes to these sites, like romantic and national sentiment, personal memories, interest in military past and practical usage of the sites.

### **The Chapel of St. Vitus - Mute Reminder of Memories**

**Michal Bureš** (Department of Archaeology, University of West Bohemia, Pilsen)

Josef Benda the Czech German came back from the Great War, where he was as a Austrian soldier and as a matter of thanksgiving built up in 1919, already as a citizen of Czechoslovakia, a chapel of St. Vitus in the middle of the hamlet of



the same name. After twenty years the same man became a citizen of German Third Reich and his sons went to the WWII. They came back and subsequently were expatriated as Germans in restored Czechoslovakia. After being resettled for certain period by Slovaks repatriated from Romania, the hamlet of St. Vitus extinct and disappeared. Although battlefields of 20<sup>th</sup> century wars were far away from this South Bohemian hamlet, due to them the cultural landscape has changed dramatically as if the battle happened right there. Change of the settlement pattern as a result of depopulation, reshaping of field systems because of ownership changes, collapse of road system, decline of sacral landscape formerly represented by wayside crosses, etc. The paper is presenting the archaeology of the hamlet in an interdisciplinary context together with rare historical records and oral history as a microhistorical case study.

### **(N)ever too much Material Remains of the “Century of Annihilation”. Human and Non-Human Agency in Gaining the “Appeased Memory”**

**Anna Zalewska** (Institute of Archaeology, Maria Curie Skłodowska University, Lublin / Warsaw)

Un(identified) human remains; neglected mounds and neat cemeteries; death pits and graves; landscapes marked by anonymous scars left by warfare and cared places of remembrance; fragile and fugitive traces of acts of atrocities and heavy and burdensome findings related to those suffering in the twentieth century - gradually and in many contexts not without resistance began to be the subject of archeological enquiry also in Eastern Europe. In my presentation, while answering the question: how and why does materiality mediate memory, for the individuals and for societies, I will try to present some conclusions from the analysis of the ongoing processes of incorporation of places, things and ‘material events’ related to the ‘century of annihilation’ via archaeology in contemporary Poland. The observations will be based mainly on the ongoing projects, among them “Archaeological revival of the memory of the Great War. Material remains of the life and death in trenches of the Eastern Front and the condition of the ever- changing battlescape in the region of the Rawka and Bzura (1914-2014)”. I will also try to diagnose: the potential of the entanglement of human and non-human agency in gaining the ‘appeased memory’ as well as reasons and motivations for pro- active (rather than re-active) archaeological interactions with XX century’s material remains.

### **Devastating the Country: Landscapes of Violence in Ethiopia (1850-1977)**

**Alfredo González Ruibal** (CSIC, Consejo Superior de Investigaciones Científicas-Spanish National Research Council, Institute of Heritage Sciences, Madrid), **Ayan Xurxo** (GPAC-University of the Basque Country, Bilbao)

The northwestern frontier between Sudan and Ethiopia has been an area of conflict since at least the mid-nineteenth century. International, national and regional wars have been fought along the border and have left an indelible mark in the landscape. In this paper, we explore the multitemporal layering of conflict using a long-term approach that blurs the divide between the archaeology of the contemporary past, historical archaeology and ethnography. We will examine the materialization of violence and the forms of memory and oblivion that it has produced.

### **Wadi Yutm, Southern Jordan: Modern Conflict Archaeology Illuminates the Great Arab Revolt**

**John M. Scott** (Department of Archaeology and Anthropology, University of Bristol, Bristol; Metcalf Archaeological Consultants, Inc., Eagle)

Modern conflict archaeology conducted in Wadi Yutm, southern Jordan, found evidence that more battles of the Great Arab Revolt occurred within that valley than were described in T.E. Lawrence’s (Lawrence of Arabia) detailed eyewitness accounts. These battles were waged solely by Bedouin against Ottoman strongholds, and the collected oral histories indicate they are part of the regional Bedouin heritage. Conflict archaeologists were drawn to Wadi Yutm because it is a geographical chokepoint that controls regional travel from all directions through rugged mountains. Many defensive and offensive structures spanning thousands of years up to the present were identified at key geographical points. The Wadi Yutm study is an example of the strength of modern conflict archaeology in finding evidence of the traumatic past. As defined by Saunders (2007), it is multi-disciplinary, multi-focal, and begins with the First World War. Once conflict evidence is identified, analyzed, and contextualized, it may or may not be appropriate for use as a type of ‘archaeological therapy.’ It is, however, almost always suitable for use in understanding and illuminating the effects of conflict on everyday life. Conflict archaeology has an inherent ability to start a dialogue, which is a necessary step for any therapy.

### **War of the Worlds: The Present Past on the Island Battlefields of the Pacific, 1941-45**

**Neil Price** (Department of Archaeology, University of Aberdeen, Aberdeen), **Rick Knecht** (Department of Archaeology, University of Aberdeen, Aberdeen)

The Second World War was arguably the most traumatic complex event in human history. Its troubled legacies have left a global mark, but nowhere more so than in the Pacific, with today’s unresolved tensions between Japan, China, Korea and

other former combatant nations. The island battlefields of the region formed a zone of cultural interaction and conflict for all the peoples of the Pacific and many from outside. Both directly and thematically, causal links can be traced back from the War to the colonial contact period, and literally underlying the wartime landscapes (but often overlooked) are the earlier settlements and sacred sites of the indigenous islanders. The properly contextualised study of the conflict therefore involves a chronological range and complexity that extends from the 1500s to today. Themes of death and memory naturally take centre stage, perceived differently over time among the multicultural actors of the Pacific. Using examples from the Palau islands and elsewhere, drawn from published and ongoing project work by the authors, this paper presents a programme of archaeological investigation that promotes the preservation of the battlefields as places of reflection and commemoration, and the innovative role of archaeology as a medium of reconciliation.

### **The Process of Excavation and Research at the Pow Camp at La Glacerie, Normandy: Reviving and Redefining Local, National and International Memories**

**Robert Early** (Head of International Business, OA, Oxford)

The excavation at La Glacerie was the first prescription for archeologique preventive for a WWII site and the largest excavation of a POW camp in France. The memories of the site had literally been buried until the site was fortuitously discovered during archaeological mitigation in advance of a building development. The multidisciplinary approach and the process of rescue archaeology and its subsequent publication connected narratives from a wide range of stakeholders including local authorities, building contractors, local residence, a TV director, curators, archaeologist, anthropologists as well as a relative of a serving soldier and ex-prisoners who were interned at the camp. In addition, historic research and oral history projects gave new perspectives that enabled us to appraise the 'inside' and 'outside' of the camp and reminded us of the economic significance of this and other local POW camps within the wider community. Over a three year period, rescue excavation and the popularisation of subsequent research have provided a catalysis for a wide range of stakeholders, but not all, to revisit and appraise their memories of this difficult period of international history. The archaeological process has not only bound together and helped manage these often conflicting memories but has also reopened an important period of local, national and international history for a new generation.

### **Archaeological Studies and Exhumation Works of the Victims of World War II Carried Out by Council for the Protection of Memory of Combat and Martyrdom**

**Dominika Siemińska** (Fundacja Generał Elżbiety Zawackiej. Archiwum i Muzeum Pomorskie Armii Krajowej i Wojskowej Służby Polek, Toruń)

Since 1994, the Council for the Protection of Memory of Combat and Martyrdom conducts exploration, archaeological research and exhumation of victims of World War II. These works are carried out both on territory of today's Poland and many other areas of Europe where during World War II, Polish citizens were murdered. The searching's are carried out in Russia, Lithuania, Latvia, Belarus and Ukraine. Works concern the Nazi concentration camps, POW camps, the places of burial of thousands of victims, which engulfed the Second World War. Research and work carried out so far, including the 1940 Katyń massacre, the Volyn massacre in 1943, the burial places of soldiers and citizens killed during both the defence in September 1939 as well as victims of Soviet totalitarianism and the Nazi years from 1940 to 1945.

### **Hegemonic Narratives, Politics of Memory and Healing Old Wounds: Archaeology as Therapy?**

**Marek E. Jasinski** (NTNU Norwegian University of Science and Technology, Trondheim), **Krzysztof Szwagrzyk** (Institute of National Remembrance, Warsaw), **Andrzej Ossowski** (Pomeranian Medical University in Szczecin, Szczecin)

This presentation addresses two important issues within the focus of the session: the contributions of Archaeology of Conflict and Archaeology of Crimes against Humanity to the anthropological studies of wars and genocides seen as social phenomena, and the concept of Archaeological Therapy (Ruibal 2008), or Archaeology as Therapy in post-conflict periods. Both issues are of fundamental importance for two interdisciplinary projects run by us within international programs of: Terrorscape.org, focusing on genocides of the 20th century in Europe, and PBGOT ([www.pbgot.pl/en](http://www.pbgot.pl/en)) focusing on the victims of Red Terror in Poland 1939 – 1956. Both issues also provide a crucial bridge between results of our present research and the general public and place researchers outside of the role of merely Cool Observers (see e.g. Chomsky 1992). Archaeology as Therapy should be further developed on several levels related to social psychology, semantics and theories of recognition. Results of archaeological therapy can quite often challenge existing hegemonic narratives and politics of memory in addressing a painful past, and consequently reopen old wounds. This difficult process is often the first stage of any successful therapy, a first step in the slow progress towards final healing. This paper will present our preliminary results and further plans.

## **Black-Topped Shreds and Lee-Enfield Bullets. Fragments of an Abstract Memory from Dispilio**

**Yannis Stavridopoulos** (University of Ioannina, Ioannina)

Dispilio is a prehistoric site located in the northwest of Greece. It is a mound on the coast of Lake Orestiada near the town of Kastoria. The Aristotle University of Thessaloniki has been running an excavation there since 1992 which has revealed layers dating back to the Neolithic and the Early Bronze Age. Different prehistoric and historic periods are represented by a great number of shreds and small finds, out of context, found on the disturbed surface layers. Multiple finds belong to the recent 20th century. Among them is a distinct category of metal materials, related to modern conflicts. There are finds, mainly bullets, from almost every war that Greece fought during the 20th century. These finds offered material evidence and information for recent macrohistorical and microhistorical war events, known, unknown or deliberately hidden. During my research it became clear that some wars are more traumatic for social and individual memory than others and this raised the questions: Are archaeologists justified or properly trained to work with such experiences? How and to what extent my political stance affected my approach and what was the attitude of the local community expressed by the workers of the excavation and my local "informants"?

## **The Bombing of Pantelleria Island (Sicily) May-June 1943**

**Marco Belogi** (University of Padova, Padova), **Elena Leoni** (University of Bologna, Bologna)

Pantelleria is a volcanic island located halfway between Tunisia and Sicily. Being along the main shipping route in the Mediterranean, the island is of prime strategic importance. By 1939 the Italian government reinforced Pantelleria's defenses completing a military aerodrome and 22 shore and anti-aircraft batteries. On 1943 Pantelleria was seized by Allied Forces as preliminary action of the invasion of Sicily from North Africa with the secondary aim to determine the effect of concentrated heavy bombing on a defended coastline. The Allied air offensive was conducted by 1,000 aircraft between May 18 and June 11. 6,600 tons of bombs been dropped on Pantelleria's port, aerodrome and gun batteries. Shortages in water, ammunition and supplies had serious effects on morale of Italian garrison who surrendered on June 11 as the Allied invasion fleet halted in front of the harbour. The whole of the historical harbour town of Pantelleria resulted wiped out, but some eye witnesses from Pantelleria stated that town destruction was due to a deliberate demolition by Allied troops after the landing in order to produce propaganda photos and movies. Current study is aimed to demonstrate that, despite some demolitions were made after battle was over, most of destruction was actually due to carpet bombing just before the landing.

## **Landscapes of Oblivion. Politics, Ideology and Perception of the Cultural Heritage in Western Poland**

**Grzegorz Kierszys** (Department of Archaeology, Szczecin University, Szczecin)

Idea of the cultural heritage is created in the relationship to the ruling ideology and socio-political needs. Therefore, it alters in time. Its values and meanings are negotiated in the social discourse and often reflect ideological conflict. Cultural landscapes can be transformed in the ways that preserves meaningful spatial patterns inherited from earlier periods. However, on the other hand, if a specific place does not fit the main ideology it may be erased from the memory, physically transformed or gradually lose its meaning. In my paper I am going to discuss some examples of landscape transformations that took place in Western Poland after World War II. The new shape of cultural landscape was the result of both after-war reconstruction and the ideological struggle. I believe this process reflects not only the after war socio-economical order but also major changes in understanding of values such as: national identity, tradition and cultural heritage. Interpretations of chosen examples will be based on the archival and modern aerial photographs, historic cartography and results of aerial laser scanning.

## **Warsaw Bridges as a Signum Temporis. The Nineteenth-and Twentieth-Century History of the Permanent Cross-River Passages in the Capital City of Poland**

**Robert Żukowski** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw), **Tadeusz Baranowski** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Università Ca' Foscari Venezia, Venice), **Paweł Gan** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw), **Barbara Rymsza** (Road and Bridge Research Institute, Warsaw), **Róża Rzeplińska** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw), **Anna Mistewicz** (National Museum in Warsaw, Warsaw), **Karol Karasiewicz** (Institute of Archaeology and Ethnology Polish Academy of Sciences, Warsaw)

The aim of this presentation is to show the history of permanent and temporary bridges connecting the city of Warsaw with the right bank of the Vistula river in the 19th and 20th centuries. Engineering issues will be discussed in a limited scope, as a background for the basic topic. On the contrary our presentation will focus on the explanation of the social and historical processes connected to the construction of bridges, their destruction and restoration, in context of gradual modernization of the capital city of Poland and development of its urban structure. We will analyze the changing fortune of the bridges

through the lens of dramatic war events in Europe and especially in Warsaw and the impact of armed conflicts on their history in literal and symbolic way. Historical analysis will be presented on the basis of social reactions Warsaw inhabitants on destroying and rebuilding bridges. Our presentation will allow researchers and a wider audience to see the unique archival iconographic sources from private and national collection and results of underwater excavation in Vistula river in 2012.

### **Who is Afraid of the Enemy's Body? The Archaeological Interpretation of the Significant Bodies in Iran** **Maryam Naeimi** (University of Tehran, Tehran), **Arman Masoudi** (Nima University, Kabul)

We are narrating the bodies of political subjects in contemporary Iran's conflicts between constitutional revolution (1905-1907) and the 1979 revolution. Bodies which enter a new layer of meaning after death. The death of a political subject as an "event" could act in the society. We solely with a corporeal sight look through the contemporary conflicts of Iran. In this period Iran had been subject to fundamental changes. Uprooting the body of Shah from a sacred body to a king with restricted order as well as visibility of the opposition's bodies or people who killed is the succinct of the narrative. The body becomes the Flag of protestations and Government is afraid of the protesters Bodies and its representations. Body could be Humiliated to contempt a discourse. The body of Shah -as the symbol of the state- praises and Spreads through representing in paintings, Photographs, statues, memorial tombs and etc; the body spreads; but, the significant body has an expire date, it takes a political change to destroy the signs of the sacred body, to contempt the body of or to vanish it in an unknown place. At the same time the Humiliated bodies become blessed. Body before and after death is like an undone project in changes through cooperation in society.

## **POSTER**

### **Goszcza, the Place where Russian Steam Roller was Stopped**

**Agnieszka Ochał- Czarnowicz** (Jagiellonian University of Krakow, Krakow), **Marcin Czarnowicz** (Jagiellonian University, Krakow), **Anna Kozłowska** (Jagiellonian University, Krakow), **Szymon Kalicki** (Jagiellonian University, Krakow)

In late 1914 after failure of the Prussian- Austro-Hungarian offensive K.u.K. Army was in critical condition. So called Russian Steam Roller was heading to the West. The gates to Silesia and to the heart of Austro- Hungarian Empire seems to be wide open. The last hope of K.u.K. Headquarter was Krakow. K.u.K. Command decided not to hide behind the walls of the Krakow's stronghold but to launch a counter offensive against approaching enemy. Now forgotten cemeteries of the November 1914 fights marks the places where Steam Roller was stopped. One of such places is Goszcza, located to the North- East from Krakow a small village was a silent witness of the heavy fights between Austro- Hungarian and Russian Army. This event changed the landscape, the remains of the battle are still visible today. In recent years group of enthusiasts and archaeologists from Jagiellonian University began a archaeological works to reveal and protect the battleground. We would like to expose not only the scientific results of archaeological research, such as the recognition of the grave of the unknown female paramedic, but also the impact of it on the local society and the remembrance of the events from the Great War.



### **T05S014 - TIMES OF CHANGES AT KÜLTEPE/KANESH AND IN CENTRAL ANATOLIA IN THE LIGHT OF CURRENT RESEARCHES**

**Organizers: Fikri Kulakoğlu** (Department of Near Eastern Archaeology, Ankara University, Ankara), **Guido Kryszat** (Institut für Ägyptologie und Altorientalistik, Johannes Gutenberg Universität Mainz, Mainz), **Ryoichi Kontani** (Notre Dame Seishin University, Okayama)

The site of Kültepe-Kanesh is far better known for its second millennium BC karum and trading center. More than 23,000 cuneiform tablets written in Old Assyrian discovered at the renowned site of Kültepe, the capital of the Kingdom of Kanesh or Nesha, do not only reveal social, political, and economic aspects of the Middle Bronze age in central Anatolia, but also in Upper Mesopotamia and Syria. The rich textual records, written in an Old Assyrian dialect, provides ample information on a supraregional private market economy, representing one of the best-documented historical cases of ancient trade in the world. On the other hand the EBA III occupational level on the mound suggests that Kültepe was, at this time, already an important center on the plateau. New term excavations which started in 2006 at Kültepe especially concentrated on these protohistoric levels. Recent finds in this new term works at Kültepe establish that the southerners organised systematic trade with Central Anatolia and Northern Cappadocia as well as Western Anatolia. New discoveries at Kültepe illustrate the complex involvement of Kanesh in these remote ventures. It seems clear that the choice of Kültepe as the center of the Assyrian Trading Colony Period in the IInd Millennium was predetermined by earlier interaction. The new term research at Kültepe/Kanesh offers a unique opportunity to probe the relationships between textual, archaeological, and other lines of questions.

## ORAL PRESENTATIONS

### Settlement Pattern Change of Early Bronze Age to Assyrian Colony Period in Kayseri Province

**Ryoichi Kontani** (Notre Dame Seishin University, Okayama)

While we were determining the period of the 106 sites surveyed by the potsherds collected from them, we found that 43 sites can be attributed to the Early Bronze Age III, 20 to the Assyrian Colony period, 34 to the Late Bronze Age, and 51 to the Iron Age through Roman periods. From our research and for lack of chronological data in this area, we were not able to distinguish each of the three Early Bronze Age phases; we were only able to distinguish between Early Bronze Age I/II and Early Bronze Age III. The number of sites within Kayseri Province increased suddenly during the Early Bronze Age III. While they decreased during the the Assyrian Colony period, they increased again during the Late Bronze Age. Yet, a preliminary analysis related to the geographical conditions of the site locations in Kayseri Province showed that toward the later period, during the period of decline in the sites of Kayseri Province, people tended to prefer gentle slopes and lowlands. These tendencies of site frequency and location show that there was a significant change since the Early Bronze Age III. We can point out these settlement pattern relations ancient trading route.

### Evidences for the Development of Early Urbanisation in Central Anatolia: Recent Research at Kültepe/Kanesh

**Fikri Kulakoğlu** (Department of Near Eastern Archaeology, Ankara University, Ankara)

Early Bronze Age in the Anatolian plateau is one that can be described as a time of transition. This period obviously created the platform on which the first major international centers and empires that emerged in the Middle Bronze Age. Especially in the last phase of EBA monumental architecture appeared, and metallurgy not only served to change the utilitarian household assemblage, but also became an important indicator of wealth and social status. Kültepe on the south of Kızılırmak bend in central Anatolia provided clear evidence for all the phases and changes in the Early Bronze Age and transition to the Middle Bronze Age. On the other hand the EBA III levels on the mound suggests that Kültepe was already an important center on the plateau. The monumental compound which reflects an evidence for the centralized administration and recent imported finds discovered at Kültepe show that the major Mesopotamian and Syrian kingdoms organised systematic trade with Central Anatolia and Northern Cappadocia as well as Western Anatolia. It seems clear that the choice of Kültepe as the center of the Assyrian Trading Colony Period in the II<sup>nd</sup> Millennium was predetermined by this earlier interaction.

### Transition from Assyrian Trading Colony Period to the Old Hittite Kingdom and Origin of Hittite Art

**Güzel Öztürk** (Department of Near Eastern Archaeology, Ankara University, Ankara)

Kültepe, the ancient city of Kanesh is defined as one of the most important urban centers in the ancient Near East. Kültepe excavations provides ample information on the uninterrupted transition from Assyrian Colony Period to the Old Hittite Kingdom Age. This transitional period was originally considered to have been very long, but in the light of new evidences from Kültepe, this period lasted just a few decades. Both a rich material culture produced in genuine Hittite style, and a wealth of written documents prove that Hittites lived at Kültepe during the Colony period. Moreover, the archaeological examples discovered at Kültepe show that the Hittite style has its roots in the Colony period. The so-called Hittite style of art was born through the synthesis of native Anatolian culture with the north Syrian and Mesopotamian tradition, which met at Kültepe in this period. Especially in the late phase of the Colony period, pure Hittite art can easily be traced in every element found in Kanesh; from pottery and statuettes of deities to the sealings. It is very clear that the memory of the Colony period survived for centuries.

### *"He must not destroy our father's house!": Changes in Households during the Old Assyrian Period*

**Edward Stratford** (Department of History, Brigham Young University, Provo)

The Old Assyrian period represents an opportunity to view in close detail the changes that came when parts of societies moved from a base of agricultural wealth to commercial wealth. The settlement of one merchant's estate after his death Offers a lense to consider such changes. After Pūšu-kēn died, his sons avoided the business of clearing the estate, wishing to avoid debt. Nonetheless, their efforts to clear his estate are preserved in one of the most fully documented estate settlements from the period. Pūšu-kēn's daughter Ahaha, who struggled to keep her brothers in accord during the stressful time of settlement, provided a viewpoint that highlights financial tensions. The negotiations between sons and with parties who owned parts of Pūšu-kēn's business through investment, show that by Pūšu-kēn's death, his financial holdings were insufficient to satisfy investors and his commercial obligations. Like all deaths, Pūšu-kēn's was one of great change for his family. Wealth from the Assyrian trade remained too liquid, and hence unprotected, weakening the solidarity of the 'house of the father' between generations. Consideration of the settlement and the social and financial stresses and forces offer an opportunity to consider the limits of wealth in the second millennium BCE.



## **Social Change in the Kayseri Region during the Iron Age New Perspectives from Kültepe and its Vicinity**

**Chikashi Miyake** (Department of Near Eastern Archaeology, Ankara University, Ankara)

The Iron Age began with the collapse of the Hittite Empire shortly after 1200 BC and continued until 330 BC. This period is also chronologically classified into the Early, Middle and Late periods. Historically, the geography of the western part of Central Anatolia is called Phrygia, and its southeastern part, south of the Kızılırmak, is called Tabal, which includes the Kayseri region. Kültepe lost its importance after the Assyrian Trading Colony period. However, there is evidence that it was densely populated in the Middle Iron Age. In short, Kültepe experienced a long hiatus from the Old and Neo-Hittite period until the Early Iron Age and renewed population during the Middle Iron Age. During the Middle Iron Age, settlements grew in number and size. Kültepe, as a city of the Land of Tabal, was probably an important centre. However, there are some important questions. What happened in the Kayseri region in the Middle Iron Age? Why was there suddenly resurgence in population in Kültepe and its vicinity? This presentation seeks to provide a new interpretation of social change in the Kayseri region during the Iron Age using materials found in Kültepe and its vicinity, such as architecture, pottery, seal and orthostats.

## **From City-State to Capital. New Lights from the “Lower City” of Boğazköy**

**Strupler Néhémie** (Université de Strasbourg, Strasbourg)

During the second half of the second millennium BC (Late Bronze Age) the site of Boğazköy / Hattuša is known as the capital of the Hittites succeeding to the City-State of Hattuš (Middle Bronze Age). Even if many Old Assyrian and Hittite cuneiform texts were funded in the first half of the 20th century, the last decades provided many more archaeological discoveries and therefore new interpretations. Recent finds and new methodologies modified the chronological framework with a better time resolution, environmental researches threw light on the economic organisation of the settlement and reassessment of the remains with new theories poses a serious challenge on the transformation of the city. The research program started in 2009 at Kesikkaya provides along with the reassessment of the older excavations from the Lower City a better understanding of the structural changes from the MBA to LBA at Boğazköy. This paper aims to clarify this transformation and the restructuring of the domestic quarters during this period. A focus on the vernacular architecture gives hints at the planning of the domestic quarters and unveils the choices that led to the transformation of the city-state into a capital.

## **Investigating Textiles at Kültepe in the Light of Current Researches**

**Eva Andersson Strand** (University of Copenhagen, l'Université Blaise-Pascal Clermont II, Université Paris Ouest Nanterre La Défense, Copenhagen)

The Old Assyrian private archives found in the houses of the low town of Kültepe dated to the 19th and 18th centuries BCE document the international trade between Assur (Upper Mesopotamia) and Anatolia. These sources contain a lot of references to a great variety of textiles, imported from Mesopotamia or made locally. Most appear in purely commercial contexts and we learn much about their numbers, their prices, their quality and some characteristics, as indicated by adjectives. However, due to bad climate conditions, archaeological textiles are extremely rare and fragmentary. Textiles, therefore, must be studied with different methods and new approaches. In Kültepe, textile production is indicated by textile tools, such as loom weights and spindle whorls, dated to the same period, Middle Bronze Age. Furthermore, we have more indirect sources: textile imprints on unbaked clay bullae allow identification of spinning and weaving techniques. Such bullae were found both in Early and Middle Bronze Age levels; these are the object of a new research project which started in 2013. We will present here the first preliminary results of a systematic study of imprints of textiles showing that the textile production during the Early Bronze Age was already well developed and varied.

## **Social, Economic and Religious Changes during the Karum-Period at Kültepe/Kanesh**

**Guido Kryszat** (Institut für Ägyptologie und Altorientalistik, Johannes Gutenberg Universität Mainz, Mainz)

According to current scientific knowledge the karum-period at Kültepe/Kanesh lasted for more than 200 years. The number of Assyrian year-Eponyms is close to 250, but it is not yet clear at what time exactly the Assyrian trade in Anatolia started. It is obvious that during such an extended period a number of changes in all parts of daily life must have taken place. It is the aim of this paper to present an overview of these changes, as far as they can be determined by the written material in aspects of the Assyrian Organisation of the trade, the social interaction between Assyrians and Anatolians and the changes in religious life as they must have come about with the arrival of new dynasties at Kültepe/Kanesh.

## **The Environmental History at Kültepe for these 6,000 Years**

**Kaoru Kashima** (Department of Earth and Planetary Sciences, Kyushu University, Fukuoka)

A multidisciplinary geologic research program corroborated with archaeological excavations made clear the history of the climatic changes in Central Turkey and Syria. The warming and very dry climate could be observed in the data from all our



drillings in the early Holocene. The humid climate recovered at first in the northern part of Syria at 8500 years BP. in the drillings from Lake Khatouniyeh. After 2000 years, the Holocene humidity started at the northern part of the central Turkey, at Lake Seyfe and Kültepe, Kayseri. However a dry climate continued in the southern part of the central Turkey such as Konya basin and the area of Lake Tuz. Similar trend of water level changes were observed at ponds and marshes near archaeological sites in central Anatolia. In 2003-2013, we made drillings at the marshes surrounding Kültepe, which were former lakes. The samples reached the bottom of the marsh sediments. The peaty clay of the base of the lowest marsh deposit was dated about 4500 BC. After that period, the initial lake was buried by fluvial sediments. The second lake was formed about 2000 BC. This lake gradually dried up again. The most recent lake deposition was dated about 1000 AD.



## **T05S015 - SO MANY COUNTRIES, SO MANY CUSTOMS: THE EVERYDAY EXPERIENCE OF RELIGIOUS CONVERSION**

**Organizers:** **Steinunn Kristjánsdóttir** (Department of Archaeology, University of Iceland, Reykjavík), **Marianne Hem Eriksen** (Department of archaeology, conservation and history, University of Oslo, Oslo), **Janis Mitchell** (Department of Archaeology, University of Iceland, Reykjavík)

Religious conversion and transformation is a traditional research topic in archaeology. It has been approached as an abrupt event or a long-term development, often understood in the light of progressions based on resistance, assimilation or the mixing of two constitutive beliefs. While such views are of significant value, this session calls instead upon perspectives focusing on managing of everyday life and customs caused by sustainable encountering, materially expressed through burials, buildings and landscapes. The process is in this manner not necessarily regarded as being based on resistance or deliberate adoption, but rather the interplay between knowledge and fashion unbound to a struggle between different religious faiths. The session is open. Papers approaching the topic of religious conversion from new theoretical and/or empirical perspectives, and from all cultural contexts and chronological periods are warmly welcome.

## **ORAL PRESENTATIONS**

### **The Christianisation Process in Scandinavia: A Game of Thrones?**

**Sæbjørg Walaker Nordeide** (Independent researcher, Bergen)

Religion plays an important part of societal aspects like power and status, and may cause problems by interaction between people of various beliefs. Christians should for instance generally not interact with non-Christians in the Middle Ages. However, before Christianity was formally established people found various solutions to problems that, at least partly, were caused by Christian involvement. Christianity's conquer of Europe was dominated by a process where the Church allied with the social elite and promoted urbanisation. This had accordingly consequences for settlement pattern and relationships across social boundaries. It is not unjust when the Christianisation process in some European regions is compared with colonisation, organised by the top secular and ecclesiastical elite. This paper will discuss some cases of relations and interaction between Christians and non-Christians in Scandinavia during this process, until Christianity became the dominant religion in c. the 11<sup>th</sup> and 12<sup>th</sup> century.

### **Christian Castles, Pagan Forests? Environmental and Religious Dynamics Following the Crusades in the Eastern Baltic**

**Aleks Pluskowski** (Department of Archaeology, University of Reading, Reading)

From the end of the 12<sup>th</sup> until the late 13<sup>th</sup> century, crusading armies unleashed a relentless holy war against the last indigenous pagan societies in Europe: tribal groups in the Eastern Baltic region. Tribal territories were replaced with new Christian states run by a theocratic elite: the Teutonic Order and individual bishops. They constructed castles, encouraged colonists, developed towns and introduced Christianity. The political reorganisation of tribal territories was accompanied by new and intensified management of the physical landscape, which varied across the region. At the same time, the spiritual landscape was reorganised into dioceses and parishes, focused on churches, cathedrals and the fortified convents of the Teutonic Order. Since many aspects of the natural world were sacred to the Baltic tribes, there must have been a relationship between the changes reshaping the physical landscape and those re-mapping (or attempting to re-map) the conceptualised landscape, following the crusades. This paper reviews the relationship between the theocratic elites, colonists and indigenous communities, and considers whether the variable impact on the physical environment can explain the persistence of pre-Christian practices within societies which, subsequently, participated in a sustained holy war against neighbouring Lithuania.

## **Transformation of Everyday Life: Architectural Alterations and the Religious Conversion on Early Medieval Norway**

**Marianne Hem Eriksen** (Department of archaeology, conservation and history, University of Oslo, Oslo)

A central aspect of lived experience is the everyday life-rhythm of the *household*. Particularly in pre-industrial societies, the house constitutes a focal point of social production and mediation. Architectural space creates templates for thought, world-view, movement and social organisation. Simultaneously, architectural forms are clearly the result of social processes. Houses and people therefore interact in reciprocal social relationships. From the end of the Neolithic period and for almost three subsequent millennia, inhabitants of Scandinavia built and dwelt in a particular architectural type: *the longhouse*. The longhouse was a central social arena of the Viking Age. Moreover, the Scandinavian-type longhouses and halls had strong, pre-Christian mythological and ritual connotations. At the end of the first millennium CE, new architectural forms, constructional techniques and spatial ideals emerge. The alternations of household space and architectural form seem inextricably linked with major social transformations: the introduction of Christianity and the emergence of the State in the beginning of the 11<sup>th</sup> century. The aim of the paper is to explore how architectural and social space was re-organised in this transitional period, particularly focusing on how changes in architectural ideals may have been connected with new religious beliefs.

## **Sign of the Time – The Relationship between Family Structure and Dwelling Houses**

**Steinunn Kristjánsdóttir** (Department of Archaeology, University of Iceland, Reykjavík)

The extensive and long-lasting expansion of Christianity across Europe during the early Medieval times brought changes to the management of both secular and ecclesiastical life. In research, great emphasis has been put on analysing the material appearances of the ecclesiastical changes, such as of churches or relics, but lesser on the changes of secular houses. From the settlement of Iceland during the 9<sup>th</sup> century until the Conversion in AD 1000 the single-room longhouse was the most common type of dwelling house. After the Conversion the longhouses were gradually replaced by dwelling houses with several separated rooms united by a central passage. These changes have usually been seen as an adaption to the cooling climate of the Medieval times. However, in the lecture, the focus will be directed at the question if the impetus for the alterations, regarding the inner arrangements of the early medieval dwelling houses in Iceland, may be found in changed family structures due to the new legislation of Christianity.

## **Objects in Viking Age Burial: Indicators of Changing Belief or Variations in Established Customs?**

**Janis Mitchell** (Department of Archaeology, University of Iceland, Reykjavík)

Did the perception and experience of death change during the Viking Age through a prolonged encounter with Christianity? Variations observed in burial throughout the Viking world might reflect difference in religious belief, but could also be evidence of alternatives in practice, expressed as established customs within the same belief system. A case study of the settlement regions of Iceland and Scotland explores the possibility that relationships between the living and dead and associated burial practices were affected by continued religious contact. Burials with grave goods, those without and also the choices made in selection of particular objects are considered. What can objects, either purposefully selected, or even left in a more unorganised and habitual grave-side manner, suggest about burial ritual and custom during a period of continued religious encounter and eventual conversion?

## **Do We Really Need Their Approval? The Impact of Syncretism and Christianization on Everyday Life and Material Culture in Medieval Scandinavia, 9th – 11th Centuries**

**Tarat Dimitri** (Department of General History, University in the Negev Beer-Sheva, Negev Beer-Sheva)

Very often, modern research tends to see in official conversion of Viking rulers and kings a crucial point of Christianization of the area. Many of medieval writers and chronicles celebrate baptism of certain ruler as a significant point in life of benefactor, or in history of sponsoring Church. The newly converted ruler was expected to spread Christianity within his lands and people, and very often to cooperate with given European Church. However, the material culture and some contemporary texts show us a different picture of spreading of Christianity. Without any official recognition, and often pressure, Scandinavian population was adopting Christian ways of life, even if partially. This paper will examine this way of conversion and how it affected an everyday life, by examining archeological material and contemporary texts, when possible.

## **Vampires Be Damned: Misdirections and Preconceptions in the Study of Mass Conversions**

**Asya Bereznyak** (History Department, the Hebrew University of Jerusalem, Jerusalem)

In the current research, the study of forced Christianisation processes is restricted to the study of the visible and relatively well documented changes in behaviour and in material culture. My presentation aims to question this and address some of the biases inherent to such an approach. In my opinion, the currently prevalent approach to the study of mass conversions tends to err both by presupposing that forced Christianisations could never lead to profound changes of internal attitudes

and by co-opting and over interpreting archaeological evidence to fit with their conclusions regarding the nature of Christianisation processes in the Middle Ages. Using the example of secondary grave openings and so-called “vampire panics,” this paper will address some of the methodological difficulties inherent to the study of conversion in the context of mass, forced Christianisations. By examining evidence pointing towards counter-vampiric measures taken by recently converted peoples, I will show how this and other archaeological evidence is often misconstrued to support pre-existing – but not necessarily justified – assumptions regarding the nature of pagan cults, Christian missions and the nature of Christianity among newly Christianised peoples. By tracing this and other biases in Christianisation research, I hope to show that this area of medieval studies requires a comprehensive re-evaluation.

### ***Ku është spathë është fjië. Gaps in the Religious Blocks from the Experience of Encounters between Muslims and Christians***

**Jose C. Carvajal** (UCL Qatar, London)

In popular culture and even in academic literature it is frequent to depict religions as homogeneous blocks with points of contact where they clash, such as the crusades. From this point of view, religions are equivalent to political factions, and their content is less important than their situation with respect to other religions. Under the consideration of the author, religion should be approached as a social phenomenon that offers discursive and practical guidance for the processes of individual agency. Given its cosmological and moral dimensions, religion can link individual behaviour with different social structures at the same time. As such, religion adscriptions constitute poor markers of identity, and they have to be approached with fine-grained descriptions. A good way of doing this is comparing the archaeological record of places where different religions coexisted. This paper presents a vision of religion understood from the point of view of archaeology. Two cases will be reviewed. The village of Xarrë, in Southern Albania, was visited by archaeologists in 2010, and an interesting behaviour in the relation between Orthodox Christians and Muslims was recorded. The other case is the study of early Islamic al-Andalus, based especially on the long-term study made by in the Vega of Granada (SE Spain), although material from other regions will be considered as well. The results show that a nuanced approach to religion is extremely useful to learn about the history of religions, but also for a better understanding of conditions of life and mentalities of past communities.

### **Converting Ideas of the Body**

**Julie Lund** (Department of archaeology, conservation and history, University of Oslo, Oslo)

Some of the practical ramifications of the conversion to Christianity in Scandinavia relates to significant changes in the burial customs. These changes were caused by altering ideas of the body, but even of objects. In the paper I will explore the parallelism in the treatment of bodies and artefacts, moving from a multitude of traditions including fragmentation towards less, but still multiple burial traditions with a focus on wholeness in terms of whole bodies and complete objects. Instead of interpreting the transitional phase from Paganism to Christianity within a syncretistic interpretational frame (mixing a bit of the old with a bit of the new) I will examine if the treatment of the bodies and the grave goods can be understood as a means of negotiating or handling different notions of ideas of the body, death and the afterlife.

### **Sleeping Bodies and Jubilant Souls: The Body in the Period of the Swedish Reformation**

**Joseph M. Gonzalez** (California State University, Fullerton)

This paper aims to explore the transformation of attitudes towards dead and living bodies in the period roughly from 1400-1650 CE based on evidence from excavations of Swedish churches and graveyards, and a survey of surviving grave-stone inscriptions from sites in Stockholm and Uppsala. The European Reformation initiated a period of rapid redefinition of Christian dogma and practice as monolithic Western Christianity was shattered into competing sects. In the Kingdom of Sweden this process was initiated and directed by the ruling Vasa dynasty that assumed control of the Church and its resources and promulgated Lutheran theology. This theological shift led to new understandings of death and salvation that contrasted with older Catholic views and those changes are reflected in funerary practice. The introduction of coffins, increasingly elaborately clothed bodies, and, in some cases, mattresses and pillows, betrays a new understanding of death as a state of sleep in anticipation of resurrection on the last day. However, in initiating new understandings of dead bodies, the bodies of the living were transformed as well. This shift becomes readily apparent through an examination of the gravestones of the period that present and discuss bodies in fundamentally new ways.

### **House-related Practices as Markers of the Neolithic in Anatolia and the Balkans**

**Saša Čaval** (Slovenian Academy of Sciences and Arts, Ljubljana)

The Island of Mauritius retains a history marked by turbulence, and diversity. Without an autochthonous population, and a highly desirable location to monitor and control the Indian Ocean’s lucrative trade networks, the island was a target for successive waves of imperial forces. The multifaceted nature of labour provision brought together people from diverse locations, cultures, faiths and spiritual attitudes. Some were able to retain (colonists) or were allowed to keep (craftsmen,

indenture workers) their identities, principles and original beliefs. In contrast, slaves, originating from a range of locations around the Indian Ocean basin, were forced to change their traditions and to convert. Modern Mauritius describes itself as “the population .... of Hindus, Creole, Chinese, Muslims and Europeans”. This amalgamation of different types of identities has its origin in the interaction of immigrants on a daily base and in an interface of their customs. Based on mapping of sacred architecture, I discuss the mechanisms that underpin belief adaptation, as well as multi-vocality in religious expression, using syncretism as a point of departure to discuss identity construction and expression.

## POSTERS

### Bohemia – One Country, Two Religions

**Gabriela Blažková** (Institute of Archaeology of Academy of Sciences of the Czech Republic, Prague), **Martin Omelka** (Institute of Archaeology of Academy of Sciences of the Czech Republic, Prague), **Otakara Řebounová** (Institute of Archaeology of Academy of Sciences of the Czech Republic, Prague)

The aim of the poster is to outline different kinds of post-medieval funeral rites on the territory of the Czech Republic in the 16th–18th century. On the basis of local excavations the poster will primarily focus on the description of the material equipment of the burials of Catholics and Protestants in the Czech milieu and will show a wide scale of material finds accompanying the Catholic funeral rites of the post medieval urban community during the period of Habsburg Re-Catholicization of the Czech lands as well as the burial rites of local Protestants before the Thirty Years’ War.

### Popular Beliefs and Superstitions in 17th – and 18th Century Bohemia: Common Religious Practice as Reflected in Material Culture

**Gabriela Blažková** (Institute of Archaeology of Academy of Sciences of the Czech Republic, Prague), **Martin Omelka** (Institute of Archaeology of Academy of Sciences of the Czech Republic, Prague), **Otakara Řebounová** (Institute of Archaeology of Academy of Sciences of the Czech Republic, Prague)

Popular beliefs, charms, and superstitious habits usually witness the success or failure of official religious doctrine on a local level. On the basis of archaeological finds, mainly from funeral contexts, we present the common religious customs and practices of the Catholic population in Czech cities of the 17th–18th century, i.e. at the height of the Habsburg Re-Catholicisation. At the same time, we try to show the influences and traditions that shaped the religious thinking of the community at this time and to outline the sources of their spread.

### Ceramic Decoration of the New Jerusalem Monastery at the Istra River According to the Recent Excavations (2009-2013)

**Olga N. Glazunova** (Institute of Archaeology of Russian Academy of Sciences, Russia, Moscow)

Archaeological studies were carried out by the expedition under Leonid A. Beliaev (Russian Academy of Sciences) in the monastery of the Resurrection Church called New Jerusalem, nearby Moscow. The archaeological finds demonstrate numerous experiments on the production of the ceramic objects, mainly tiles and other architectural decorative elements, but also kitchen and table ware. The experiments appeared to be both successful or recognized unfit. Clearly allocated to the initial phase, various traditions of ceramic production generate an entirely new type of so called “Russian Tile”. Ceramic decoration of the Resurrection monastery (“the New Jerusalem”) makes the appearance of this architectural complex a unique one. It was a result of the tireless energy of Patriarch Nikon and his team of artists from the countries of the Central Europe, collected by him on this construction project. Ceramic vessels tiles apart were fired in the same ceramic kilns. Products of Western masters, its imitation dishes, made from local clay and less skilful hands and the traditional pottery of the region are well allocated among products of this workshop. Despite the fact that the products of this workshop did not beyond the nearest neighbourhood, but, judging from the context, the Patriarch intended it for sale and distribution throughout the country. Oddly enough to admit it, but the activity of only several workshops changed the face of Russian cities and not only the outer appearance of the buildings. It was an extremely important step to the European style interior, new level of comfort and living standards. We can say that in this in the middle of the 17th century not only the changes in the political history but also in the material culture of the state were prepared.

### Archaeological Excavations in the Resurrection of “New Jerusalem” Monastery at the Istra River: New Experience in the Field Investigation

**Maria A. Capitonova** (Institute of Archaeology of Russian Academy of Sciences, Moscow), **Svetlana B. Grigorian** (Institute of Archaeology of Russian Academy of Sciences, Moscow)

Archaeological study of the monastery, called New Jerusalem (nearby Moscow) is carried out by the special expedition under Leonid A. Beliaev (Russian Academy of Sciences) since 2009. As an excavation project it has some unusual features.

Probably it would be of use to share this experience in the organizing of the process. There are several unusual features in the project. First, the expedition has to dig all the year around and cannot escape to the laboratory even in frozen Russian winter time. Second, all the results should be transmitted in the disposal of the architects and construction firms immediately, because they expect to effect architectural and infrastructural decisions. Third, the expedition has its definite and strong time limit: it has to be over till 2016 –the year of the re-opening of the monastery. The last but not the least – expedition is not permitted to demolish or deconstruct any of the objects opened under the soil. On the contrary, all of them – cemeteries and places of production, dwellings and pavements, basements and cloaks – should stay intact nevertheless of the condition. And all the measures for their protection should be undertaken. The scholarly results of the research are very much intermingled with the practical necessities of engineering and restoration, but they are very impressive. There were found much more small (and “medium size”) objects than under the usual diggings, including even just unique (such as the pottery flask of the Patriarch, the ceramic icon of Christ of the high artistic quality). Also, the interpretations of the results are really refreshing for the study of Russian culture before Peter the Great.



## **T05S016 - THE IMPACT OF EMPIRE: MEMORY AND INTERACTION IN HELLENISTIC AND ROMAN PISIDIA**

**Organizers:** Bilge Hürmüzlü (Süleyman Demirel University, Isparta), Lidewijde de Jong (University Groningen, Groningen)

Although the rich archaeological heritage of Pisidia is rarely included in studies of change and social transformation, the metamorphic power of various empires manifested itself prominently in the material record of this region in the Hellenistic and Roman era. The Hellenistic kingdoms in particular were pivotal in shaping change in this territory: vast colonization promoted by Seleucid kings induced the founding of various city-states with extensive territories in Northern Pisidia. The Roman Imperial period gave rise to numerous Roman colonies and mixed communities that were part of the Roman provincial administration. The emergence of an ‘Imperial material culture’ resonates in the material culture of Pisidia, as is visible in architecture, city planning, inscriptions, and burial customs. The integration into a global empire permeated many aspects of daily life. At the same time, Pisidians reached back into their long, pre-Hellenistic history to create a distinctly local identity. This panel aims to bring together scholars studying Pisidia from different perspectives, including urban architecture, settlement history, burial customs, epigraphical habit, as well as the non-urban and religious landscape, subsistence practices, and ceramic traditions. The main theme revolves around the impact of empire, memory, transformation, changes and interaction in this key region in Anatolia.

## **ORAL PRESENTATIONS**

### **Cities and Emperors**

**Lutgarde Vandeput** (British Institute at Ankara, Ankara)

Monumental architectural remains can seldomly be dated to before the third century BC in Pisidian cities. From the earliest traces onwards, the architecture bears testimony to Hellenization in Pisidia. By the time the Romans arrived in the area, they found a network of fully equipped poleis in the region. Although the actual monuments differ according to the possibilities and options of individual cities, the urban development in the Hellenistic period ran parallel. Differentiation started from the very early imperial period onwards. Whereas a few cities immediately embraced ‘Roman’ forms of monumental architecture, many others remained loyal to Hellenistic building traditions, often making it impossible to date public buildings. Amongst those embracing the new forms were Antiocheia ad Pisidiam, the main colony founded in the region by Augustus, but also Sagalassos, where to our knowledge such ties never existed. It is only from the Antonine and especially the Severan period onwards that the other cities started adopting ‘Roman’ forms of monumental architecture. The timing of these developments coincides with direct intervention by the emperors and their presence in the region. The paper will focus on explaining these divergent urban developments, with special attention to the role of the emperors.

### **Empire Meets Pisidia. A Footnote in Whose History?**

**Jeroen Poblome** (University of Leuven, Leuven)

The Hellenistic and Roman Imperial centuries are characterized by a general rise in social and economic complexity by processes such as urbanization and the growing importance of political structures. The time period covered in this session saw original Pisidian micro-states being incorporated into macro-states, such as the Seleucid and Attalid kingdoms. Local and wider changes in the organization of society were noticeable and at times drastic. Rome represented the main macro-state, incorporating Pisidia between Republican and late Roman times. Different members of local Pisidian communities reacted in variable ways to structure of empire, while meaning and identity was created in the mix. At the same time,



historical archaeology is prone to fill gaps in the local archaeology with general historical knowledge, and such projection is in constant need of careful evaluation. Therefore, this paper wishes to test innovative heuristic frameworks in order to systematically compare events and trends which are traditionally approached side-by-side and often top-down, resulting in partial understandings of quite often path-dependent processes affecting and affected by the dimensions of space, time, scale and context. Complexity here we come!

### **The Chora of Kibyra during the Hellenistic and Roman Periods**

**Oliver Hülken** (Institute of Classical Archaeology, LMU, Munich)

The Kabalis, an area which is widely identical with the modern province of Burdur, came under the sway of the Pisidians not before the early Hellenistic period. During that time Pisidians started to found cities such as Kibyra in this part of Asia Minor which was under a strong Lydian influence before. Very little is known about these processes during the Hellenistic period but there must have been fundamental changes. Kibyra, for example, was not a completely new foundation but the city was transferred from another formerly Lydian site to its new place where it subsequently became an urban centre. Also the situation in the countryside has obviously changed, especially when the region was incorporated into the Roman Empire. The chora of Kibyra has been surveyed for several years now in order to gain insight into its settlement patterns and development. The situation has become more and more clear especially for the Roman Imperial period. The paper will concentrate on the pertaining results of the survey.

### **Times of Change: Urbanization Models in Northwest Pisidia from the Hellenistic to the Roman Period**

**Bilge Hümmüzlü** (Süleyman Demirel University, Isparta)

Throughout history settlements have played an important role in shaping and transforming the usage of land according to the circumstances of the time, and these transformations are reflected in the archaeological record. Based upon the explorations of the Isparta Archaeological Survey, this paper will address the urban configuration and reconfiguration of Northwest Pisidia, especially in and around Konana, during the Hellenistic and Roman periods. As will be argued, the aggregate evidence suggests the presence of dense settlement in the environs of Tymandos and Konana in the Iron Age, while in the Hellenistic period the Seleucid foundations of Apollonia and Seleukeia Sidera brought with them great changes to the area. The region also underwent extensive re-designing and revamping during the Roman Imperial era, and Konana was no exception. In all likelihood this town became the home of a large contingent of Romans, plausibly veterans relocated during the great mobilization when most Pisidian and Galatian colonies were founded. This colonization may be reflected in the archaeological record, when a distinct trend of dissemination of small farmstead sites east and west of Konana can be detected.

### **Pisidian Antioch: The Transformation of an Imperial Roman Colony**

**Fikret Özcan** (Süleyman Demirel University, Department of Archaeology, Isparta)

In the Early Imperial period Pisidian Antioch was transformed from a Hellenistic foundation to a Roman city. However there are hardly any architectural remains or ceramics that demonstrate the Hellenistic phase of the city. Also the question about the nature of the relationship between the Hellenistic city and the Men Sanctuary has not been clarified yet. It can be assumed that some settlements were present before the city was founded. With the new founding of the city in the time of Augustus not only social and political transformation took place but with secular and sacral constructions the whole urban structure was changed and defined for later centuries. In this time the ties between Pisidian Antioch and Men Sanctuary were close. Until the end of the 6th Century A.D. prosperity inside and outside the city can be observed. During the 8th century crises the infrastructure of the city collapsed. Quarriers in the vicinity operated not any longer. The maintenance and care of public buildings were makeshift at best. Suburban houses were abandoned and rural settlements vanished. It seems there were demographic changes in the city as well as in the surrounding countryside.

### **Memory and Remembrance, Real and Mythical in Roman Imperial Sagalassos**

**Marc Waelkens** (University of Leuven, Leuven)

Sagalassos offers plenty of evidence illustrating the importance of both communal and individual self-representation being remembered throughout the Imperial period. At the communal level, the iconography of public architecture and coinage, continued emphasizing the repute of the Sagalassians for their bravery and fighting skills as best soldiers of Pisidia, a fame earned prior to Alexander's arrival already. From the Early Imperial period onwards, the city kept up this reputation by claiming a Spartan origin, even introducing a cult for a mythical Spartan founder. The iconography of highly-esteemed buildings and statuary copied on later monuments and in a variety of locally produced artifacts, memorized what must have been perceived locally as cultural heritage. Perhaps from the reign of Hadrian onwards already, but otherwise from the rule of Antoninus Pius on until that of Zenon, despite having been by-passed by Diocletian as capital of his newly founded '*provincia Pisidia*', the city wanted to be remembered as 'first city of Pisidia'. At the individual level the local elite

not only aspired to be remembered through its public benefactions, stressing in the accompanying inscriptions its lineage and family relations, but also erected new or transformed existing monuments into 'dynastic memorials' and even created funds to be remembered through new statuary during more recent generations.

### **Global/Local Identities: Funerary Practices and Commemoration in Roman Pisidia**

**Lidewijde de Jong** (University Groningen, Groningen), **Dies van der Linde** (Independent scholar, Groningen)

Roman Pisidia has yielded a rich collection of tombs and other material pertaining to burial customs. Multiple tombs, stelae, reliefs, coffins, and funerary inscriptions inform us about lives and deaths of people in the region. This paper presents the first results of a new project, aimed at cataloguing the funerary material from Northern Pisidia. The dispersal and de-contextualization of many of the remains, most notably the stelae and coffins, create challenges for the project. However, rather than discarding this material in favor of better-published excavations, we propose to assemble the scattered remains and to initiate a comprehensive study of Pisidian funerary ritual and commemoration. Tombs in Roman Pisidia emitted a variety of messages about the identity of the occupants. Colonists, soldiers, families, shepherds, and farmers were actively memorialized, and their names and faces prominently adorned their graves. The tombs allow us to trace the gradual impact of foreign influences on local practices, and the integration of Pisidians into the global culture of the Roman empire in the first centuries CE. At the same time, they adhered to and perhaps reinvented specifically local, i.e., non-global, commemorative customs.

### **The Development of Local Sanctuaries in Pisidia in Roman Times**

**Gina Alajmo** (Freie Universität Berlin, Berlin)

The integration of Pisidia into the Roman Empire in 25 BC led to the introduction of new elements, but also to modifications in the religious landscape. The establishment of the imperial cult resulted in the appearance of new temples, but also existing sacred sites still persisted and even gained new importance. In the region Caria there are some local sanctuaries which experienced a revival during the 2nd century AD, especially if they had a long tradition and were dedicated to the god who held the patronage of the city they belonged to. The Pisidian sanctuary of Men Askeanos in Antiochia ad Pisidiam also seemed to experience a similar development during that time. On the basis of the development of this sanctuary as well as the Zeus Kesbelion sanctuary in Selge it will be examined to what extent an alteration in the handling with local sanctuaries during this situation of political change can be determined. It will be interrogated for which reason and with what intention the sanctuary came to a new heyday during this period and compared to the development of the Zeus Kesbelion sanctuary in Selge.

### **Roman Religion, Pisidian Practice: Rock-Cut Votive Reliefs from Southwest Anatolia**

**Tyler Jo Smith** (University of Virginia, Charlottesville)

A large number of Hellenistic and Roman rock-cut reliefs have been discovered during the course of archaeological exploration of Pisidia. Among the types represented most notable are the twin hero-gods, Castor and Pollux, accompanied by an unnamed 'goddess, and the local Anatolian horseman, sometimes called Kakasbos. Similar relief types have been identified in northern Lycia, especially in the territories of Oinoanda and Balbura. Many of the reliefs from southwest Anatolia had been known previously and documented by earlier travelers and epigraphers. This paper takes a fresh look at the cults and images represented and addresses the themes of 'memory and interaction' in relation to the reliefs. As permanent votive dedications, the relief carvings (some inscribed) play both devotional and commemorative roles. Their function and iconography also express the importance of protection. It is arguable that the divinities themselves are neither fully Greco-Roman nor fully Anatolian, and that their conflation in this instance is a uniquely Pisidian phenomenon. The art of rock-carving, as well as the use of votive niches and 'cup marks', also point to local practices rather than Empire-wide ones.

### **What's in a Name? The Embrace of Phrygian and Pisidian Culture in Phrygian Pisidia, II-V CE.**

**Paul Iversen** (Case Western Reserve University, Cleveland)

The second century CE geographer Ptolemy (5.5.5) placed Konane, along with several other settlements in the area of NW Pisidia, under the rubric of "Phrygian Pisidia", which suggests that even in the second century CE the Phrygian elements in this part of Pisidia remained a defining feature. This paper will address the epigraphical evidence roughly contemporary with Ptolemy (II-V BCE) for Phrygian and Pisidian culture recently gathered during the Isparta Archaeological Survey, especially in the region of ancient Konane. It will be argued that while Greek became and remained the dominant language of inscriptions among the elite, nevertheless the local community continued to employ Phrygian and Pisidian names along side Greek and Roman, thus suggesting an ongoing memory and embrace of traditional Phrygian and Pisidian culture in the face of a succession of empires in the area.

## **The “Warlike Pisidians” at Home: Urban Housing in Hellenistic, Roman and Late Antique Pisidia**

**Inge Uytterhoeven** (Koç University, Istanbul)

In addition to earlier investigations new research in Pisidia has during the last decades refined our understanding of the Hellenistic and (Late) Roman past of the area. This paper focusses on the aspect of urban private housing in ancient Pisidia. By means of selected examples taken from Pisidian sites, investigated through excavations and surveys (including own field work at Sagalassos), different facets of Hellenistic, Roman and Late Antique housing will be discussed. Attention will go to the development of residential areas in relation to the general evolution of the Pisidian cities, architectural and decorative characteristics of urban dwellings, and private infrastructure. Starting from these elements it will be addressed whether urban housing in Pisidia underwent significant changes between the Hellenistic Period and Late Antiquity and to what extent houses of the different periods can be considered indicators of the socio-economic, political and ideological background of their inhabitants. Moreover, against the general historical development of Pisidia the question will be raised whether the presence of Roman colonists in the area had a profound influence on the introduction of ‘Roman’ aspects within an ‘Anatolian-Greek’ context.

## **Pisidian – Greek – Roman. Acting Out Communal Identity on the Upper Agora of Sagalassos**

**Peter Talloen** (University of Leuven, Leuven)

In antiquity, people used and manipulated the landscape of the earlier past, shaping the memory of the community, as part of the construction of identities. This collective memory was dynamic: people remembered (or forgot) their past according to the needs and stimuli of their present. The upper agora of Sagalassos was such a commemorative landscape with a rich collection of images, inscribed texts, and monuments that reflected and contributed to the construction of local and regional identities. It was the space where, through the use of monuments, images and symbols, these identities were acted out before the masses, a memory theatre that served to remind the community at large of who they were. This paper wishes to present the first results of a research project that studies the upper agora as an architectural mirror of the process of urbanisation that unfolded at the settlement. Urban development was one of the tools in the hands of the locals for the creation and display of identity, and by examining its constituting elements, the project aims to establish the successive waves of urbanisation, their role in the articulation of different identity-aspects, and the impact of Empire on the process.

## **POSTERS**

### **Civic Coinage in Pisidia. Seeking a Balance between Local and Imperial Identity**

**Fran Stroobants** (Royal Library of Belgium – Coin Cabinet, Brussels)

This paper wishes to address the impact of empire in Pisidia through the medium of coinage. During centuries, cities in Asia Minor issued their own silver and bronze coinage. The region of Pisidia yielded an abundant civic coinage during Hellenistic and Roman Imperial times as well, which circulated alongside royal and imperial coins. This paper will try to explain how these local coinages were influenced by the impact of Hellenistic and Roman empire from various perspectives. How did both ‘local’ and ‘imperial’ coinage circulated and functioned alongside each other? Who was responsible for the issuing of these civic coinages and how far did imperial interference in local production reach? What does the coin iconography tell us about imperial influences on the one hand and local identity on the other? Were civic coinages adapted to the imperial metrology and denominations, or did they follow their own system? The civic coinage of Sagalassos will function as starting point to answer these questions. Combining this material with other numismatic, archaeological and historical evidence, it will become clear how the region of Pisidia sought and found a balance between local and imperial identity, and how this balance evolved due to changing contexts and interests.

### **What’s New: Architecture and Social Changes in Pisidia**

**Ayça Gerçek** (Osmaniye Korkut Ata University, Department of Archaeology, Osmaniye)

In addition to the social and cultural elements Roman Empire needed a visual image to support its power. From this point of view architecture is one of the most important medium and has also functioned as a direct mirror of politics. The power of Roman Empire has been imposed with the building policy and propaganda and has been provided visually by the impressive public buildings. There is no doubt that the buildings in the cities sent visual messages to their citizens. From the beginning of the Roman rule some visual changes occurred in Pisidia like the whole Roman world. The Roman Empire established its presence visually through public architectural forms. Within extensive building programs, the public buildings in the Pisidian cities were constructed especially from the second half of the 2nd century AD to the 3rd century AD. The public buildings constructed by emperors, local elites or cities themselves, both sped up the process of urbanization and also symbolized the new dominating power. The main purpose of this paper is to try to understand how architecture played an important role to show the socio-cultural changes and how it was used to create a social memory in the cities of the region.



## **THEME 6**

### **“Retrieving and Interpreting the Archaeological Record”**





## THEME 6: RETRIEVING AND INTERPRETING THE ARCHAEOLOGICAL RECORD

Even if excavation is at the heart of retrieving data in archaeology, the role of other agencies in obtaining primary data increasingly is taking over; nevertheless, some of these are consistent with excavation. Along with traditional methods such as systematic surface surveys, epigraphy, ancient literary sources, geophysical prospection, numerous other methods such as micromorphology, ethnoarchaeology, residue and use-wear analysis have now become indispensable in reading the record of the past. While a whole spectrum of means to acquire primary data is increasing, the questions that are asked which are the basis for interpretation are also becoming more diversified and sophisticated. A few decades earlier, what would have been a simple explanation in assessing archaeological evidence, has now become distinct fields of specialisation such as household archaeology, settlement archaeology, cognitive archaeology, and site catchment analysis. Furthermore, different modes of looking and interpreting the past are much more pronounced than before, extending from processual to post-processual and cognitive approaches. Thus, with advances in methods of retrieving data and analysis coupled with the multivariate approaches in considering the past, the spectrum of archaeology as an academic field has expanded considerably, becoming significantly versatile at the same time.

The theme intends to bring together case studies, and to open a dialogue between factual, methodological and theoretical approaches for retrieving, analysing and interpreting archaeological evidence. Furthermore, the theme is also open to the consequential implications of recent recoveries.



### T06S001 - GLOBALIZATION THEORIES IN ARCHAEOLOGICAL INTERPRETATIONS

**Organizers:** Tamar Hodos (University of Bristol, Bristol), Alexander Geurds (University of Leiden, Leiden)

Globalization is currently one of the most potent theoretical frameworks, for it provides a means by which we can make sense of our socio-cultural connectivities, our differences, and the networks through which those connections are developed and maintained. For this reason, archaeological scholarship is increasingly using such perspectives to understand the transfer and development of knowledge, ideas and values, as seen through material culture. Most such studies focus on the shared characteristics suggested by the concept of globalization, however, often in bipolar contrast to evidence for local difference. In contrast, this panel will illustrate the potential of globalization theory to move beyond merely identifying the Local and Global in material culture analysis. Drawing together case studies from world archaeology, the papers interrogate the processes and networks of connectivities that underpin the ideas of globalization as seen in material culture, and reveal the social complexities of global engagement. Regions include Africa, the Americas, east Asia, southeast Asia, west Asia, Australasia and Oceania, Europe, and the Mediterranean. Collectively, they will address and redefine the paradigm itself in its application to past societies and material culture.

## ORAL PRESENTATIONS

### Globalization Thinking and the Past

**Robbie Robertson** (James Cook University, Townsville City)

Globalization is a form of connectivity that envelops the world. However, this very simple description masks both its complexity and contentiousness, particularly when considering its role in shaping the course of human development. At stake are ways of seeing the world and understanding the global turn. When did globalization begin? Who or what drove it? In what way can it be applied to the smaller worlds that emerged before interconnectivity became global? And how does globalization relate to the industrial transformations that heralded our modern world? These questions lie at the heart of globalization thinking and any examination of the global past.

### Globalization in the Past and the Present - Archaeologists and Glocalization

**Margarita Díaz-Andreu** (ICREA-Universitat de Barcelona, Barcelona)

Awareness of the potential of globalization for the understanding of networks and the development and persistence of long-distance connections is recent. However, as a process it has stimulated many changes in the history of the world, as well as in the history of academic disciplines. Globalization can help us understand material culture, but we should not forget the archaeologists who are behind its interpretation – they are also influenced by globalization and glocalization. This paper analyses how globalization has impacted the development of archaeology and the interpretation of material cultures. It assesses how the archaeologists' own personal experiences of globalization may have led them to become aware that such processes had taken place in the past. Globalization has an impact on the transactions of archaeology, especially in the case of colonial and post-colonial archaeology. It also affects the movement of archaeologists to other countries, particularly in periods of tension, such as prior to World War II. The consequence of this in the way material culture is per-

ceived in the global world is still in need of closer analysis. The paper also examines how the local and national geographies in which archaeologists have developed their interpretations influence the globalization of this experience.

### **Globalizing Ideas in West Asian Material History**

**Tamar Hodos** (University of Bristol, Bristol)

West Asia is a vast geographic territory that extends from the Bosphorus to the Iranian plateau, across the Arabian peninsula and down to the Sinai, and up to the Southern Caucasus. Its socio-cultural history encompasses diverse peoples and groups, each with fluid boundaries of settlement and impact over their respective floruits. Although cultures and empires have emerged from this region, and declined, networks of connectivity remain an important facet of their successful dissemination of ideas, techniques, individuals, and control. One of the earliest examples is the networks through which the techniques of agriculture spread from central Anatolia; one of the most recent ones is how today's Gulf states are shaping their heritage futures through their visual culture collections. This presentation highlights examples of globalising processes in action from the Neolithic to the modern era in West Asia to demonstrate the common characteristics of globalisation that transcend temporal specificity.

### **The Archaeology of Globalization in East Asia**

**Gideon Shelach** (Hebrew University, Jerusalem)

One of the most enduring images of pre-modern East Asia is of an isolated, stable cultural sphere. This image originates from idealized Chinese descriptions, which describe China as a self-sufficient civilization with no interest in or need for contacts with societies beyond the East Asia region. It was canonized by early Western visitors and is reiterated still in modern textbooks. Such descriptions ignore evidence for contacts between East Asian, South Asia, West Asian and European societies. East Asia itself was since prehistoric times a heterogeneous region populated by societies of different traditions and economic adaptations. Contacts among these societies had attributes we commonly associate with globalization, such as the development of a certain degree of 'homogenization' of cultural habits, socio-political institutions, world-views, etc., contrasted with resistance to the 'homogenization' and the genesis of local traditions. Evidence for such processes are ubiquitous in the region's archaeological data. This paper presents two case-studies in demonstration: 1. The elite interaction sphere during the late Neolithic and early Bronze Age (c. 2300 – 1500 BCE) and its effects on regional societies; 2. The Warring States period (479–221 BCE), when integration and assimilation processes coincided with the genesis of indigenous cultures around the Chinese world.

### **Prehistoric Globalization in Central Asia: Reconsidering the Andronovo Development**

**Alicia Ventresca Miller** (Christian-Albrechts-Universität zu Kiel, Kiel)

Globalization is a trans-societal and cross-cultural process of relationships and interactions that can be identified through the flow of information, technology, and ideas. Central Asia has often been recognized as a pertinent location for the study of broad-scale interaction, yet the nature and interplay of local communities in these larger processes is rarely investigated. Instead, interaction has been modelled in terms of broad sweeping narratives that mute local variability. This paper confronts broad theories proposed for the Late Bronze Age Andronovo development in an effort to reconsider the multiple scales of interaction that occurred in prehistory. A bottom-up approach is used to re-contextualize multiscale datasets into larger narratives through the investigation of material culture. This paper highlights the presence of multiple unique local traditions that are overlain by the broader Andronovo development. Traditions in mortuary construction and body treatment are locally distinct, while particular objects or styles are shared on a regional level. Similarities in ceramic vessel style and bronze ornamentation over a broad region may be the result of cross-cultural exchange. Based on these results, the Andronovo development should be modelled in regard to process of globalization, where local communities differentially negotiate interaction and exchange with multiple partners.

### **Local Negotiations of Global Dynamics in the Xiongnu Empire of Iron Age Inner Asia**

**Bryan K. Miller** (Bonn University, Bonn)

Globalization in antiquity has repeatedly been correlated with the spread of core cultures and even integrative forces akin to colonization or imperialization. However, recent studies have emphasized the active agency of local societies in their engagement with global processes. Rather than consider globalization as an impending cultural force of global-scale social integration, we may consider the ways in which local societies engaged, negotiated, and even exploited global networks within local social and cultural politics. Through the case study of foreign-infused alterations in material culture assemblages of the Iron Age Xiongnu steppe polity of Inner Asia, this paper reassesses the roles that inter-societal exchange and interaction played in intra-societal developments. By refocusing our attention beyond the mere presence of foreign elements in local cultures and more toward the patterns of local consumption as well as the local social and cultural changes that

accompany heightened foreign appropriations, we may more aptly understand the relationships between global dynamics and local developments.

### **Towards an Understanding of the Neolithic Transition as a Multidimensional Process**

**Irene Garcia-Rovira** (University of Manchester, Manchester)

Globalization stems from the increment of international trade; of forms of communication; of free movement of capital. No primordial agencies can be granted to this process, yet this arrangement has led to a situation of irreversibility. However, globalization has not led to the homogenization of the world. Whilst at a glance it is only possible to see the effects of this process by encountering analogous elements, its directionality has led to the creation of new forms, or glocalizations. Similarly, the Neolithic transition resulted in archaeological assemblages which are similar but different. We seem to know when the transition has taken place due to the reproduction of diagnostic elements, yet our sets of evidence are characterized by common difference. If the Neolithic transition can be conceptualized as a global process triggering unique contexts of transformation regionally, if it can be defined as a process in which novel human and non-human relationships triggered new forms of sociality, then it is necessary to reconsider the ways in which this process is studied archaeologically. In this paper, I wish to explore the potential that globalization studies have to devise new methodological strategies which challenge traditional research focused on the mechanisms of transmission of the Neolithic.

### **Beyond Connectivity: On Mediterranean Materialities**

**Miguel John-Versluys** (University of Leiden, Leiden)

Almost a decade ago Ian Morris remarked: “we should push the globalization analogy harder, applying to the ancient Mediterranean the same tough questions that scholars ask about connectedness in our own time”. This lecture will do so, using globalization theory not only as a descriptive framework but also as an explanatory one. From at least the (late) Bronze Age onwards the (wider) Mediterranean has been described as a global world, but what does that imply for our understanding of it? What the history of the Mediterranean looks like in terms of connectivity has been illustrated by Horden & Purcell’s *The Corrupting Sea*; although mostly in ecological and economic terms. What all that connectivity implies in terms of culture, material-culture or something called “Mediterraneanism” is less clear. I will argue that one of the main gains of adding globalization theory to our conceptual toolbox is the fact that it usefully redirects our attention to material culture as history maker. Globalisation could be described as crucially a relationship with material culture; a particular grip that material culture gets on people. It is thus from a combination of Globalisation and Material Culture Studies that future histories of the Mediterranean should be written.

### **Globalisations, Things, and Europe Before and After 1500 CE**

**Martin Pitts** (University of Exeter, Exeter)

In the short history of globalisation studies, Europe has enjoyed a pivotal and privileged position – if not always with good reason. For most scholars of the 1990s and 2000s, globalisation only began (or became possible) with the ‘discovery’ of the New World by European explorers. What happened next in the connection and integration of the world’s disparate continents was similarly credited to European innovations – technological, economic, political and cultural. While these views have since been challenged, archaeology has not provided a major voice in the debate. To redress this situation, this paper seeks to dispel some of the myths of Europe’s role in globalisation by providing thing/object-based perspectives – in the first instance by exploring some of the characteristics of globalisations that affected Europe before 1500 CE, and secondly by re-examining aspects of European modernity in terms of archaeological evidence. The empirical focus of this comparison is provided by archaeological ceramics – simultaneously serving as indicators of circulation and connectivity on one hand, and local consumer cultures on the other. From this comparison I argue that while globalisation is ‘good to think’ for understanding ‘Europe’ before 1500 CE, we must radically de-centre Europe in explanations of the origins of modern globalisation.

### **Proto-Globalization or Simply Long-Distance Connections? An Africanist Perspective**

**Paul Lane** (Uppsala University, Uppsala)

Long regarded as the Dark Continent in European imagination, the past quarter century of research on and about Africa has transformed scholarly understanding of the extent and scale of its global connections. Examples include the trans-oceanic links around the Indian Ocean that witnessed significant exchanges in raw materials, finished commodities and human beings, as well as numerous biological transfers and linguistic diaspora commencing in the first millennium BC. Other significant routes of exchange and global networks linked Africans to the Mediterranean world and continental Europe via trans-Saharan connections and maritime routes along the Red Sea, and with the New World as a consequence of the development of the trans-Atlantic slave trade. This paper explores a range of such global connections in an effort to answer two key questions - namely, were these early instances of globalization and so offer a comparative perspective on today’s

processes of globalization, or were they merely the precursors to a phenomenon that can only ever be associated with the era of late industrial capitalism?

### **Friction and Flexibility Along the Mesoamerica and Central America Divide: Globalization in Pre-Modern Middle America**

**Alexander Geurds** (University of Leiden, Leiden)

Pre-modern Middle America is predominantly understood as consisting of two distinct cultural regions: Mesoamerica and the Central American region. The time depth of these archaeologically distinguishable regions is debated to some degree, but the second millennium BCE is generally accepted as a precursor to later specific material culture patterning that allows for distinction between Mesoamerica and Central America. In addition to obvious social, political and economic differences, descriptions of both regions diverge in terms of characterization. Central American indigenous societies were characterized by a heterogeneous amalgam of material culture, reinforced by a complex pattern of linguistic variation. By contrast, the Mesoamerican nearest neighbors to these societies were marked by a strong formal and material cohesiveness, a homogeneity referred to as 'Maya'. This paper reviews how Middle American archaeological research has produced such a divergent image of the pre-modern past, and questions the validity of this portrayal through two case studies. Processes of local level resistance and adoption to particular forms of globalizing mechanisms are presented from the areas presumed to 'divide' both cultural regions: one highlights arguments of core/periphery relations in central Honduras (300-800 CE) and a second discusses the application of World Systems theory to Greater Nicoya (800-1550 CE).

### **Distinguishing Past Globalizations**

**Justin Jennings** (Royal Ontario Museum, Ontario)

Over the past decade, there has been increasing interest in relating earlier periods of intense long distance interaction and culture change to the complex connectivity that defines our contemporary globalized world. Although this engagement with the present is essential, we must also develop clear criteria to distinguish earlier periods of globalization from those periods where other kinds of long-distance interaction dominated. This paper draws on the work of Gill Stein, Cyprian Broodbank, and others to discuss how we can identify earlier globalizations by analyzing the tempo, scale, and character of the cultural changes that were precipitated by the flow of ideas, goods, and people across broad regions. A comparison of the spread of the Chavín and Wari cultures across the central Andes can be used as a case study to explore some of the critical differences between early interaction systems. Although both Chavín and Wari are both seen as cultural horizons by archaeologists, only Wari meets the criteria for a period of globalization as defined in this paper.

### **Subsistence Middlemen Traders and Precolonial Globalization in Melanesia**

**Ian Lilley** (University of Queensland, Brisbane)

The kula and other long-distance exchange networks of coastal northwestern Melanesia have attracted scholarly attention for over a century. This is because despite their scale and complexity, these systems were based on "unbusinesslike" ceremonial exchange motivated by political competition rather than economic factors and integrated the worlds of far-flung groups of acephalous, kin-based and technologically Neolithic societies, in most cases through a few communities of specialist middlemen traders completely dependent on exchange for survival. Historically these features challenged prevailing social-evolutionary theory concerning the capacities of societies lacking chiefly or state-level organisation. This meant that notwithstanding their local and regional importance, these networks, like similar 'Oceanic oddities' such as the so-called 'empires' of Tonga and Yap, were seen to exist "outside the realm of world historical experience". This paper discusses the archaeology of one such system centred on the Siassi Islands between New Guinea and New Britain and described in Tom Harding's classic ethnography, *Voyagers of the Vitiaz Strait*. The focus is on evidence for 'glocalization'.



### **T06S002 - ARCHAEOLOGY: THE LIMITS OF INTERPRETATION (Round Table Session)**

**Organizers:** **John Barrett** (University of Sheffield, Sheffield), **Ben Edwards** (Manchester Metropolitan University, Manchester), **Alexandra Ion** (University of Bucharest, Bucharest)

Contemporary Archaeology is marked by a questioning of the limits of interpretation: from the desire to establish unambiguous links between dynamic processes and their material record to the focus on understanding the symbolic, or the recent desire to infer the emotions invoked by artefacts, and the agency of objects. Such interpretations draw upon an array of theoretical tools, from actor-network theory to evolutionary theory and phenomenology that derive from research traditions beyond archaeology. What we never appear to discuss are the more fundamental questions: is archaeology actually capable of interpreting the things which we desire?, what things should be interpreted?, what type of knowledge is archaeology striving for?, what is deemed scientific and why? We invite speakers from across the theoretical spectrum

to address the limit of interpretation. What can we interpret and what is lost to us? Should we try to push beyond these accepted limits, or in the trying do we risk more than just our academic integrity? What are the political and ethical dimensions of pushing the limits of interpretation? If we are creating a past, what sort of past should it be, and how should it interact with the present?

## ORAL PRESENTATIONS

### Why Evidence Gathered as if It Recorded the Past Cannot Validate Models of Past Process

**John Barrett** (University of Sheffield, Sheffield)

Archaeology tends to map material remains as if their order represented some aspects of the organisation of the past (economic, social or cultural organisation for example). The seemingly reasonable assumption is that the organisation of past agencies created the patterns recognisable in the material 'record'. However, archaeology also expresses the desire to explain how those creative agencies came into being and were transformed through time. However, attempts to explain why certain conditions came into being tend to be little more than 'informed speculation' simply because all available data have been used to describe the empirical phenomena that need to be explained (the explanandum) rather than being used to build an understanding of the mechanisms at work in the past (the explanans). The alternative is to treat the material evidence not as a record of the consequences of organised processes but as part of the mechanism by which those processes were brought into being. In other words, archaeological data are the remnants of the means by which certain forms of life (where life is the dynamic) became possible. Archaeology therefore needs to offer an answer to the question 'what is life?' that incorporates the material it investigates into that answer.

### Significant Interpretation: Understanding Social Change without a Recourse to "Why"

**Ben Edwards** (Manchester Metropolitan University, Manchester)

Since the rise of contextual approaches to archaeological interpretation in the early 1980s, archaeologists have implicitly or explicitly sought to interpret the symbolic meaning behind past practices (be it behaviours, architectures, deposits or material culture) as a way of understanding the human motivations lying behind them. It is the stance of this paper that this means of understanding the past lies beyond the limit of possible interpretation using archaeological evidence; in the pre-historic period at least. The temporal distance of the past, combined with the arbitrary connection between the 'signifiers' of archaeological evidence and 'signified' of human motivation, renders the attempt to 'get inside people's heads' an epistemologically and morally questionable practice. Instead, this paper will argue for a different limit to interpretation, based upon an alternative method of characterising past practices. It requires that we recognise a) that our encounter with the past is one of disconnected 'instances' in the evidence, and b) that we seek not individual motivation, but an understanding of long-term social change. Accepting these premises, we can examine the past as a series of changing significances: identifying what was important at a given time, without necessarily attempting to explain why.

### Interpretation in the Neo-Baroque Era

**Felipe Criado-Boado** (Institute of Heritage Sciences, Incipit-CSIC, Santiago de Compostela)

The limits of interpretation are related to the limits of the subject. While extending interpretive practice contributes to the constitution of the individual experience and increases the level of self-awareness, at the same time it could deploy an author(-itarian) subject and could minimize social and community engagement. One solution for this dilemma would be to root interpretations and meaning so far from individual interpreters as possible. In doing this, there is a broad interface to entangle interpretation theory and practice with new approaches to ontology and materials. This contribution will explore the challenge of rooting interpretation in the material dimensions of the real things. Could interpretation arise from the materialities themselves? Despite the epistemological and methodological problems to objectify this direct linkage, the answer to this question could be "definitely yes", since meaning is shaped in and by the processes of materialization. But the actual response is not easy. In this paper I will explore the matter and will refer it to current transformations of interpretation in an "era" characterised by neo-baroque aesthetics and hyper-liberal power strategies. But at the same time, I will use examples of historical Baroque to explore this linkage between materialities and archaeological interpretation.

### Negative Archaeology. Critical Approaches to Material Culture

**Rafael Millan Pascual** (Complutense University of Madrid, Prehistory Department, Madrid)

Archaeological knowledge is usually considered to be a continuous increase of our understanding of the past. Nonetheless, official interests regarding this knowledge and our intrinsic interpretative tensions may shape material culture as a passive devise. But how can we displace this archaeological discomfort? I intend to propose a clarification of this matter. Throughout its history, archaeology has been used as a metaphor by many other disciplines. But this powerful character of



archaeology is not normally used by archaeologists themselves. Ruins, artifacts and structures are all negative impressions of one lost positive. Actually, Modernity has increased these negative impressions, as the great amount of contemporary obsolescent objects and catastrophes remind us. Underestimated concepts such as obsolescence are proposed as useful tools to reinterpret some archaeological attitudes applied to our contemporary daily lives. Rubbish, old-fashioned things and discards could function as negative evidence of current social and political problems. Could archaeology play a role in contemporary conflicts and debates? Reshaping the archaeological record as an active and emancipatory social instrument is required. Here some philosophical implications of this objective are suggested and how contemporary material culture may highlight and clarify our understanding of the archaeological record.

### **Experience, Multi-Temporality, and the Senses: Towards a Philosophical Archaeology**

**Yannis Hamilakis** (University of Southampton, Southampton)

As the organisers of this session point out, our interpretative attempts in archaeology are limited by several constraints of theoretical/methodological, as well empirical nature. And yet our intense, physical engagement with materiality and temporality can produce knowledge and understanding of a different kind: a tacit, evocative and affective understanding, an embodied and sensorial knowledge that cannot always be translated into academic prose and interpretative argumentation. This may not be about a certain “past”, but it is still an immensely valuable education on life and experience. Relying on the framework of sensoriality, I will claim in this statement that archaeology can question, if not overcome, the foundational logic of western modernity which has placed the rational, autonomous, self-contained (male) human at its centre, an omnipotent person ready to tame and contain the anarchic and unpredictable nature of the bodily senses, in the same way that he could conquer and colonise far away places and people, and chronologically distant realms. A multi-sensorial and affective archaeology can also question the mono-chrony and linearity of modernity, opting instead for the multi-temporal nature of experience. A rich, philosophical, poly-chronic archaeology is thus emerging out of this reconfiguration.

### **Desiring Interpretation Beyond Representation**

**Benjamin Alberti** (Framingham State University, Framingham)

We are limited by our desire, not our interpretive efforts. One way interpretation is limiting to archaeology is in its obedience to a particular model of representation which determines how the goals of archaeology are conceived. When interpretation is as an overly linguistic operation in which an accurate representation is sought it seems to move on a plane above the material. Contemporary approaches remind us that in some ways archaeology is just like any other practice, both thoroughly material and discursive. Through multiple acts and much textual and actual talk we create pasts, as the session abstract suggests. Recent writing and material production in archaeology emphasizes the co-constitution of the past, its material manifestations, and knowledge of it. Practices and intellectual traditions inside and outside the scientific mainstream, including contemporary art, quantum physics, and Indigenous anthropologies, challenge us to reconsider how to represent. If we are after an unambiguous past that sits within a scheme then archaeology's interpretive efforts are limited. If, however, we want to explore the limits of interpretation we can do so by interrogating our concept of representation. Our desires, and therefore interpretive efforts, may change.

### **Epistemology, Academic Disciplines and the Limit of Archaeological Knowledge: Practical Ways Forward**

**John Robb** (University of Cambridge, Cambridge)

Attempt to understand and deal with the limits of archaeological knowledge have been hidebound by peculiar attitudes: a polarizing absolute subjective/ objective dichotomy, an inferiority complex about imaginary disciplines with perfect knowledge, and wishful fits of optimism. To really understand the limits of knowledge we have to start with epistemological critique. In this position piece, I argue that the limits of knowledge in any discipline derive not from its materials but from its method and working assumptions. It follows that there are every field has its limits to knowledge, and these are inseparable from knowledge itself. From this, I discuss the particular nature of archaeological knowledge and its limits, and the implications for working with, or even simply talking to, people with other forms of knowledge (such as linguists, geneticists, or even the general public).

### **Archaeology: The Limits of Inference**

**Marko Marila** (University of Helsinki, Helsinki)

Archaeology during the recent twenty or thirty years has seen a gradual shift toward an open-ended view of scientific conduct. This attitude reverberates in claims for the ‘death of archaeological theory,’ and is at the heart of new - and equally diverse - materialist and realist theories sparked by the ‘material turn.’ While the limits of archaeological interpretation are being challenged, new questions arise about the ‘meta-level’ of interpretation and inference. Is there a characteristically archaeological form of inference to make up for the fragmentation of archaeological theory? How do we tell bad inferences

from good ones? Arguing for an open-ended, fallible, and speculative archaeology, the paper discusses above questions by deploying yet another theoretical tool from pragmatist philosophy of science. The main tenet of the paper is that archaeological interpretation at its most fundamental level is abductive, inference to the best explanation type of reasoning. While a weak form of reasoning, often times close to guessing, abduction is 'the only logical operation which introduces any new idea.' Abductive inference therefore has a central role in explaining the unexpected and the unusual in archaeology.

### **The Limitations of Cognitivism in Archaeological Interpretations**

**Artur Ribeiro** (Graduate School of Human Development in Landscapes, University of Kiel, Kiel)

Current archaeological interpretations of prehistoric societies articulate historically particular instances with anthropological and sociological universals. This articulation has worked fairly well since its first manifestations like the use of Marxist theory by Gordon Childe, and later with Lewis Binford's use of Ecological Determinism, and more currently with the use of Giddens' Theory of Structuration and Bourdieu's Theory of Practice. However, an issue that has limited the explanation of change and development in prehistoric societies is that these theories assume that humans represent universals in the mind. Given the fact that cognitivist sciences have yet to fully explain how these universals change within the mind, the only explanation of change is one that is dependent on external-to-the-mind factors (social pressure, environmental conditions, economic conditions, etc.). Current philosophical perspectives argue that the Cartesian dualism of the mind and body should be replaced with post-Wittengenteinian theory of rule-following (Vincent Descombes, John Searle, Robert Brandom, Richard Rorty) in order to provide better accounts and narratives as to how societies develop and change. The talk/paper will ultimately address the implications of this view in archaeological interpretations.

### **What Type of Knowledge is Archaeology Striving for?**

**Alexandra Ion** (University of Bucharest, Bucharest)

In this paper I will ask the question: should archaeology be history? a memory practice? a natural science? sociology or anthropology? should it be epistemology or, as Benjamin Albertis suggested, an ontologic practice? I am interested to start a discussion on what archaeology deems relevant when looking at an object. Objects make the past manifest in the present through their materiality, but they are placed at a cross-road, between present and past(s), in the centre of various networks of meaning. Depending on how archaeologists choose to delineate THE context (time-space frame, or chronotope to use M. Bakhtin' term and on what things they choose to bring together), objects have been viewed either as fossil records, as evidence, as "lieu de memoire", or goods to think with. Not only does each option lead to different time frames and material connections, but it views the past-present relationship differently: from the past lived in/overlapping with the present, to a distant and distinct past. This opens up a series of ontological and epistemological implications, revolving around the issue of where we, in our present time, (choose to) stand in relation to the past in our process of knowledge production.

### **Archaeology, Subjectivity and Negative Agency: Its Implications and Corporeality**

**Maryam Dezhamkhooy** (Birjand University, Birjand), **Leila Papoli Yazdi** (Freie University, Berlin)

Can a series of subjectivities be somehow defined for archaeology as a discipline or knowledge? If so, then what are the semantic implications of such subjectivity? Regarding archeology as a humanistic discipline and its passing process indicates that its subjectivity can intensively influence context/s archeology works on/into it, from a very positive to a very negative demolishing one. "Orient" was one of the objects presented by archaeologists. So, museums were filled with Oriental objects. For someone from Orient, the "term" orient homogenizes the diversity of regional cultures, reducing it to a word. The process of objectifying in archaeology, in most cases, originates from a distance between the objects and subjects. Such subjectivity terminates the "negative agency" which reproduces some of its objects as "the others". Even within their local contexts, the indigenous archaeologists reproduce the total idea of archaeology; they also promote the idea of being an other/oriental. Archaeology is an "other" for many people in their own contexts. Can we think of other forms of archaeological subjectivity within which there is no "otherness"? In this article, we are going to discuss the consequences of the historical subjectivity of archaeology and the process of objectification of archaeologists and archaeology.

### **Exploring Interpretation in a Post Post Modern Perspective**

**Diego Salazar** (Department of Anthropology Universidad de Chile, Santiago), **Donald Jackson** (Department of Anthropology Universidad de Chile, Santiago), **Andres Troncoso** (Department of Anthropology Universidad de Chile, Santiago)

Based on previous contributions by different colleagues, we present a model of archaeological interpretation which examines the different levels of interpretation, the connections between these levels and the criteria which should be used to evaluate the validity of interpretations. We are specially concerned about the role that data, middle range theory, social theory and ethical/political position play in the process of inference building and the possibility of archaeology to contribute to the modern world through a reconstruction of the past which brings into critical light the conditions of the present.

## The Paradox of Three-Dimensionality in the Process of Archaeological Interpretation

**Constantinos Papadopoulos** (University of Southampton, Southampton)

Although the real world is three-dimensional, in archaeology we perceive reality as two-dimensional. This is because archaeological reality is turned into a two-dimensional production by the conventional recording mechanisms employed, attempting to preserve the excavated information and to create a sustainable record. In turn, these two-dimensional records have to be restored to their three-dimensional qualities in order to be used in any research, analysis, presentation or methodological approach. This means that the material world is flattened by the various methodologies employed, while we have to rely on the products of this paradox to produce three-dimensional interpretations and understandings of the past. This transformation of evidence from one form to another is utterly problematic, since we lack both the tools and the knowledge, which could help to minimise the loss of data and/or the inflow of information that might have never existed. This paper critically examines the multiple levels of complexity in the concept of three-dimensionality in the different stages of knowledge production through the archaeological process and discusses the limits of interpretations in these contexts.

## Towards a Generative Anthropology of Disciplinary Thought and Language: The Case of Archaeology

**David S. Webster** (Durham University, Durham)

Generative Anthropology issues from a speculative and minimal hypothesis concerning the originary scene of the human, the scene in which the simultaneous origin of language and religion took place. Generative Anthropology's principle founder is Eric Gans, an American Classicist at UCLA. In this paper I will draw on elements of Gans's writings (and others), and try to characterise archaeology's own generative impulses manifesting as a desire for the re-appropriation of the traces of our origins (to paraphrase Gans). The intuitions (for the present at least) are that a) interpretation and the theoretical warrants lying behind it, is a move of appropriation that can lead to mimetic crisis and 'violence' were it not for our cooperatively adhered to (disciplinary) methods that constrains individual claims on the archaeological past within historically grounded interpretive norms. Interpretation proceeds collectively, and orderly, or not at all. And b) explicating the self-involving disciplinary language, e.g. "we will have to survey in those sections" will be key to understanding the manner of collectively constructing interpretations.

## Local Limits

**Gheorghe Alexandru Niculescu** (The "Vasile Pârvan" Institute of Archaeology, University of Bucharest, Bucharest)

The limits of our interpretations are usually discussed in an universalistic frame. Although no one inhabits a whole discipline, such discussions certainly make sense. However, before reaching such limits there are others, less frequently discussed, which shape individual scholarly trajectories and make some interpretations unthinkable. Local, but not locally produced, some of them are variants of professional blindness, which might be tacit or not. Starting from what happened, not from what is conceivable, I will try to make a systematic inventory of local limits and to explore their interactions in a particular, peripheral, tradition of research, seen from the perspective of someone trying to understand ethnic phenomena in a country in which we were all educated to become nationalists.

## Applying Data Mining and Machine Learning Tools to Archaeological "Big Data"

**Mark Polczynski** (Marquette University, Milwaukee), **Michael Polczynski** (Georgetown University, Washington)

The term "big data" applies to collections of data bases so large and complex that the data becomes difficult to process using traditional database management tools and processing applications. This presentation describes how data mining and machine learning technology can be used to aid in retrieving, analyzing, and interpreting archaeological "big data". The set of tools associated with data mining and machine learning technology are designed specifically to integrate massive extended databases to find useful but difficult to perceive patterns and structures in noisy data. This presentation describes how these tools be applied to archaeological big data. This presentation is composed of two major sections. First, an overview of data mining and machine learning tools, and clustering and classification algorithms in particular, is provided. Then the use of these tools is demonstrated on three datasets: the first is a small geographical scale (100 meter) dataset of simulated archaeological excavation artifacts; the second is a medium scale (10 km) work-in-process classification of Islamic inscriptions in the city of Istanbul; the third is a large scale (1000 km) work-in-process characterization of the 17th century frontier region between the Polish-Lithuanian Commonwealth and the Ottoman Empire.

## Pushing Beyond the Limits? Tracing the "Archaic" Period Recalled by the Archaisms of Mycenaean Greek

**Theodoros G. Giannopoulos** (Open University of Cyprus, Athens)

The aim of the paper is to demonstrate that the limits of understanding of past societies can be significantly extended through the use of non-positivist theoretical approaches and interdisciplinary research strategies. In the present case

study, the linguistically attested regular use of archaisms in Mycenaean Greek is combined for the first time with an archaeological inquiry seeking to identify the “archaic” period, which is recalled through these archaisms. The starting-point for asking this new question is a phenomenon often encountered in past and present societies, the use of archaic language forms for specific social purposes. The possible relevance of this phenomenon to the 2nd millennium BC linguistic reality in Greece is not merely explored in terms of testing a generalisation regarding a specific function of language. It is rather discussed on the basis of archaeological and historical evidence which highlights the important ideological role of the past in this particular cultural area. A non-empiricist and non-positivist view regarding the things we should ask and seek to interpret is combined with the post-processualist emphasis on ideology and the specific historical context, offering some new interpretative perspectives of the past.

### **Early Christian Period Discoveries at Ulpiana / Kosovo**

**Haluk Çetinkaya** (Mimar Sinan Fine Arts University, Istanbul)

Excavations at the ancient city of Ulpiana / Kosovo commenced in 1950's. During first years of the work, major discoveries were made such as a basilical church, city gates in the north, parts of the city walls and two cemeteries in north and west. Until 2012 excavations continued at intervals by local and international teams. 2012 became the most fruitful year since the discovery of the basilical church in 1956. An Early Christian baptistery, the biggest discovery in more than 50 years, was discovered by the Turkish team excavating at the central western part of the city. Judging from the construction material and technique it seems that the baptistery was given its newer function after an earlier building probably a public bath or at least a bath of a house. It was followed by the discovery of the Early Christian church with floor mosaics north of the baptistery in 2013. Both structures can be dated to 4th century basing on the coins and floor mosaics. The floor mosaics, of which only around 5% is unearthed, provides not only the date but also names of donors as well.

### **Visual and GIS Analysis of Neolithic Cliff Paintings in Finland**

**Karen Niskanen** (University of Oulu, Archaeology, Oulu)

This paper describes a framework for analysis of ancient art by means of modern visual analysis with the aid of GIS methods. A combination of epistemologies from both processual archaeology and the interpretation of visual images, the research objective is to discover how we understand the art. This paper reports on a study applying these research methodologies in the study of the neolithic cliff paintings at Astuvansalmi and Värrikallio, in Finland. While GIS provides a means to describe the representational aspects of these paintings in terms of the physical characteristics and location, the visual analysis goes beyond the physical to examine the artistic choices, both intentional and unintentional.

### **Does Absence Means Presence? Interpreting Early Medieval “Slavic” Settlement in the Light of Absence of Langobard Settlement in Western Pannonia**

**Dasa Pavlovič** (Freelance archaeologist)

The chronology of the site Nova tabla by MurskaSobota, Slovenia, located in western Pannonia, established on newly discovered archaeological material and radiocarbon dates, provides most of the new and surprising discoveries. The interpretation of the results of radiocarbon dating raises the possibility of the immigration of the Slavs to Prekmurje (western Pannonia) in the first half of the 6th century, which is support with other archaeological and historical data, particularly related to the migrations of the Langobards (Lombards) in Pannonia. The author is proposing the thesis that absence of the Langobard archaeological material, west of the line Pecs-Kesthely-Sombathely and east of Zasavje Region and Kozjansko in Slovenia, archaeologically associated with “Polis Norikon”, insinuates that Langobard colonization towards West come across an obstacle, presumably in form of already existing “Slavic” presence in western Pannonia in the first half of the 6th century. This approach of interpretation of “Slavic” settlement in western Pannonia and its chronology is used for the first time and it remarkably differs from older interpretations of when and how Slavs settled Pannonia.

## **POSTERS**

### **Geochemical Method for Testing Homogeneity of Bone Assemblages at Multi-Layered Sites: Insight From Bone-Bearing Caves in Poland**

**Maciej T. Krajcarz** (Institute of Geological Sciences Polish Academy of Sciences, Warsaw), **Magdalena Krajcarz** (Institute of Geological Sciences Polish Academy of Sciences, Warsaw), **Piotr Wojtal** (Institute of Systematics and Evolution of Animals Polish Academy of Sciences, Warsaw)

Among the main tasks in archaeology is to evaluate contemporaneity of artifacts found at one site or in one layer, especially at multi-layered sites, where a risk of mixing of artifacts from different cultural levels may exist. Naturally-occurring

re-depositional processes are known from caves and other multi-layered sites. They are mainly bio- and cryoturbations, human activity and slope processes that can involve huge masses of sediment. However, the processes are only recognizable at sites with laminated and lithologically diversified sediments. Where lithological differences are weak, boundaries are blurred or rock rubble and numerous stones occur – the sedimentological features are obscured and post-depositional structures are unrecognizable. The impact of re-deposition on the mixing of archaeological assemblages may be underestimated. A helpful approach for the recognition of bone assemblage homogeneity is geochemical fossil provenance analysis. The method is based on fact that the chemical composition of fossil bones is determined by nature of the surrounding sediment, shortly after the fossil's original deposition. This phenomenon may be used to determine the original context of bones, even re-deposited ones or also those with uncertain primary location (e.g. poorly documented finds from old research). The method was tested on chosen Polish cave sites and successfully verified with radiocarbon dating. The research was financed by Polish National Science Centre, grant number 2012/05/B/HS3/03751.

### Statistical Methods in Archaeology: An Interpretation of Results

**Dmitriy Shmuratko** (Perm State Humanitarian Pedagogical University, Perm), **Alexey Sarapulov** (Perm State Humanitarian Pedagogical University, Perm)

The report examines the possibility of methods of statistical analysis of archaeological sources using. The authors demonstrate the possibility of statistical methods applications for classifications formation, artifacts typologies; alignment of the system of relative chronology; reconstruction of cultural, social and ethnic connections. The authors give examples of the reconstruction of the social structure of ancient society, ethnic contacts, economic-cultural type using medieval materials of burial and settlement monuments from the territory of the forest belt of Eastern Europe. The authors outline the borders of statistical data use and the interpretation on numerous examples. They pay attention to the fact that statistical calculations require adequate interpretation.

### Understanding the Structural Systems of Prehistoric Wooden Post Buildings: Aşağı Pınar

**Zeynep Eres** (Istanbul Technical University, Istanbul), **İlknur Türkoğlu** (Kırklareli Cultural Heritage Management Project, Istanbul)

The conventional building material used in the European part of Turkey, Eastern Thrace was perishable materials such as wood, thatch, twigs or reeds. Aşağı Pınar is the prehistoric site located in Turkish Thrace excavated since 1993. During the excavation, several wattle and daub building had been unearthed and all fragments of daub that could be detected, either burned or unburned, were drawn to scale 1/20 in the architectural plans. All burned fragments that could be related to a structure were collected and processed in the excavation house. Among them those with any kind of plastered surfaces or imprints were cleaned, consolidated and described. Then, samples were selected either for sketch drawing or more detailed tridimensional documentation. The selection was made according to the type of impressions or surfaces preserved. Over 9000 daub pieces have been studied, over 700 documented, 340 have been tridimensional drawn to scale 1/10- In particular the tridimensional drawings of the imprints preserved have been most instructive in understanding not only the structural system but also the various details such as roofing, partition walls, the building system of posts. One other experimental work has been matching daub pieces together to obtain a visual picture of the structural details.



### T06S003 - ASSEMBLING ÇATALHÖYÜK

**Organizers:** **Ian Hodder** (Department of Anthropology, Stanford University, Stanford), **Arkadiusz Marciniak** (Institute of Prehistory, University of Poznań, Poznań)

For 20 years large amounts of data have been collected by the Çatalhöyük Research Project in Turkey. The wide range of types of data from this 9000 year old site have allowed inter-disciplinary collaboration and the assembling of strong arguments on the basis of multiple lines of evidence. Project members seek lines of connection between different data sets in a process that builds on archaeological and social theoretical notions of 'assemblage'. The conjunctive approach of Walter Taylor, contextual archaeology and hermeneutic spirals, Wylie's 'cables and tacking' and Latour's Actor Networks all seem relevant. The process of assembling data into arguments is exemplified in the interactions between the 160 researchers in the 34 different specialisms within the project. Different types of data seem to produce different types of knowledge. When three to four different sets of data align, unexpectedly robust arguments can be built, but the different forms of data can also create dissonance that has to be resolved. The papers assemble data from cultural, social, biological and environmental realms in order to deal with key issues in the growth of the large agricultural village at Çatalhöyük and its transformation over time.



## ORAL PRESENTATIONS

### Assembling Theory: Theory and Practice

**Ian Hodder** (Department of Anthropology, Stanford University, Stanford)

The interactions between the 160 researchers in the 36 different specialisms within the Çatalhöyük Research Project are informed by overall project aims and structures, but laboratories and researchers have considerable autonomy. In such 'flat' work environments, the notion of assemblage seems particularly appropriate. Within archaeology the term assemblage refers to association of objects (often produced elsewhere) in a specific context. Within philosophy and social theory, the term assemblage is often used, as a result of the work of authors such as Deleuze and Guattari, DeLanda and Bennett to refer to the contingent ways in which juxtapositions of usually separated elements lead to the emergence of new knowledge. At Çatalhöyük, collaboration between usually separated specialisms has produced contingent alliances and co-workings that easily transform. The arguments that emerge do not come about solely from the top-down testing of hypotheses and expectations worked out before-hand; rather the arguments emerge through the process of interlacing and braiding across and between domains. These boot-strapping operations can lead to dissonance as the different types of data are shown to be misaligned, or they can lead to strong and robust arguments as three to four different types of data are assembled that fit together.

### The Metaexcavation: A 3D Mode of Inference at Çatalhöyük and Beyond

**Maurizio Forte** (Classical Studies, Duke University, Durham), **Arkadiusz Marciniak** (Institute of Prehistory, University of Poznań, Poznań)

The Çatalhöyük project is one of the most complex archaeological projects conducted today. It addresses a wide range of research questions by mobilizing an ever increasing number of datasets. This makes the archaeological process highly heterogeneous and idiosyncratic as it requires a constant compromising of the heuristic potential of a range of different categories of evidence being recovered at the site. The particularly challenging is the excavation process itself aimed at systematic recording and recovering these different data using a complete set of recovering, recording and documenting techniques. The paper intends to discuss the virtually reversible excavation process in a simulated environment from laptop computers to virtual immersive systems as a means of dealing with these new challenges. This "meta-excavation" process, conducted within the "3D-Digging at Çatalhöyük" project, makes it possible to merge the reflexive process faced by the archaeologist with empirical data (archaeological evidence) and mediated experience (the virtual simulation). An in-depth understanding of this process is possible thanks to ongoing studies of the relations between human brain and 3D immersive systems. The authors argue that this "meta-excavation" process provides an unprecedented possibility to deal with the challenges of a rapidly changing discipline by providing solid foundations for constructing bold inferential modes using different range of datasets and consequently enriching the archaeological interpretation.

### The Archaeological Process at Çatalhöyük – Creating a Living Archive

**Claudia Engel** (Stanford University, Stanford), **Karl Grossner** (Stanford University, Stanford), **Elijah Meeks** (Stanford University, Stanford)

As team members examine connections between various Çatalhöyük data sets in the process building on archaeological and social theoretical notions of 'assemblage', they interact with records stored in tables, with digitized maps, digital photographs and 3D spatial models. Recent technological developments allow us to open up this repository in ways that can support a reflexive archaeological process and allow the creation of evidence from multiple perspectives and the re-interpretation of objects at multiple scales, in multiple contexts and with multiple voices. We will discuss the development of a prototype of a Çatalhöyük "Living Archive" that integrates data storage with interpretation. Core data are made available alongside interpretive layers, so the archive stays alive beyond the excavation activities for future interpretation, analysis, and scholarship. Features are: (a) exposure of the contents as Linked Open Data to facilitate comparative studies with related projects, (b) spatial-temporal-thematic browsing and object clustering to provide novel capability for understanding and analyzing the complex deposition sequences, (c) textual integration of Çatalhöyük publications with artifacts, features, or buildings as recorded in the database, and (d) an interpretive workbench for individual researchers to maintain item collections of interest and to annotate the core dataset with alternative interpretive categories.

### Interpretation Process at Çatalhöyük Using 3D

**Maurizio Forte** (Duke University, Durham), **Nicoló Dell'Unto** (Lund University, Lund), **Scott Haddow** (Oxford University, Oxford), **Nicola Lercari** (Duke University, Durham), **Camilla Mazzucato** (Stanford University, Stanford)

The project "3D-Digging at Çatalhöyük" started in 2009 as an on-site digital experiment to record every phase of an archaeological excavation in 3D, using different technologies such as laser scanning, computer vision, and photogrammetry. The end goal was to make the excavation process virtually reversible in a simulated environment from laptop computers to



virtual immersive systems. Since the beginning, when the 3D recording project was initiated, the Çatalhöyük GIS geodatabase has been used as the main repository and display space for the Computer Vision (CV) data captured on site. During the course of excavations, georeferenced CV and laser scanning models are imported to the GIS geodatabase and integrated with other spatially related data, equally stored and arranged in the geodatabase. The ability of GIS of integrating, displaying and analyzing diverse data sets within a single environment makes them an ideal tool for facilitating archaeological interpretation and the optimal place for 3D data to be used in the interpretation process. 3D interaction and visualization allow very detailed analyses of all the stratigraphic relations in the 3D space and a more advanced reconstruction of all the archaeological excavations. In short, all the process can raise new research questions.

### **The People and Their Landscape: Changing Mobility Patterns at Neolithic Çatalhöyük**

**Joshua W. Sadvari** (The Ohio State University, Columbus), **Michael Charles** (University of Oxford, Oxford), **Christopher B. Ruff** (Johns Hopkins University, Baltimore), **Tristan Carter** (McMaster University, Hamilton), **Milena Vasić** (Freie Universität Berlin, Berlin), **Clark Spencer Larsen** (The Ohio State University, Columbus), **Daniella E. Bar-Yosef Mayer** (Tel Aviv University, Tel Aviv)

In this paper, we explore the relationship that the Neolithic inhabitants of Çatalhöyük shared with the landscape upon which they lived, worked, and interacted, especially in terms of shifting patterns of mobility. Analyses of human skeletal remains as they relate to mobility at Çatalhöyük are undertaken at two different scales. On a broader temporal scale, Çatalhöyük is compared with previously-studied samples spanning the Upper Paleolithic to the Bronze Age in Europe, and these results are interpreted in light of recent reconstructions of the task regimes of Çatalhöyük's inhabitants and the landscape in which the community was situated. On a more local scale, results suggestive of increasing mobility in the later levels of the site's occupation are based on the integration of multiple lines of evidence including human skeletal remains; plant phytoliths; faunal remains and isotopes; raw materials sourced in the production of mudbrick, pottery, chipped stone, and ground stone assemblages; and stone and shell resources related to bead production and personal adornment. Within this holistic framework, shifting patterns of mobility at Çatalhöyük are explained with reference to a suite of ecological, technological, economic, and social stimuli.

### **Laying the Foundations: Creating Households at Neolithic Çatalhöyük**

**Tristan Carter** (McMaster University, Hamilton), **Scott Haddow** (University College London, London), **Amy Bogaard** (Oxford University, Oxford), **Nerissa Russell** (Cornell University, Ithaca), **Christina Tsoraki** (Leiden University, Leiden)

Building a house that will be occupied for decades - often following its predecessor's destruction - is a highly charged liminal moment that likely coincided with the foundation of a new or reconfigured household in need of establishing its social identity and standing. The practices associated with constructing a house at Neolithic Çatalhöyük thus marked a defining moment in the creation of particular social entities and the establishment and/or continuation of a lineage. We have recognized the remains of a series of repeated practices within the construction and/or first occupation phase of many buildings, including obsidian caching, the manufacture and gifting of projectiles, the burial of neonates, stone and wood-working, plus the deposition of various special faunal and archaeobotanical assemblages that are viewed as "foundational" in nature. We argue that these deposits provided a spiritual endowment and social capital to ensure the long-term success of the house and its occupants. We explore the various acts that needed to be performed, the media articulated within them, and the nature of the networks that had to be re-affirmed and created anew in order to endow the Çatalhöyük house and establish its social foundations.

### **Creative Practice & Endorsement: How Community was Built at Çatalhöyük**

**Eloise Govier** (Trinity Saint David, University of Wales, Lampeter)

Creative practice is seen throughout the layers of habitation at Çatalhöyük. The community made plaster, paint and mud-bricks to create unique environments. They interacted with their materials and formed figurines, painted elaborate wall-paintings and modelled decorative features for their living spaces. In this paper I want to explore the uniformity in certain creative practices occurring at the neolithic town. By focusing on the figurine corpus I will consider the communal aspect of 'making' and how the creation, treatment and disposal of certain figurines indicates that their importance lay in their creation. Following on from Martin and Meskell's (2012: 191) notion that the figurines could be interpreted as 'mimetic acts', I want to think about the social act of 'making' by considering visibility, similarity and longevity. Equating the act of making with that of 'endorsing' I argue that the creation of figurines along with other creative practices that would have taken place outside and thus in 'public' (such as making plaster and mud-bricks) were community building acts. By doing so I hope to illustrate that creative practice was a social tool that aided community cohesion at Çatalhöyük.

## Complexity in Simplicity: Reflections on Çatalhöyük Architecture as Process

**Marek Z. Barański** (Gdansk University of Technology, Gdańsk), **Aroa García Suárez** (University of Reading, Reading), **Arkadiusz Klimowicz** (Adam Mickiewicz University, Poznań), **Serena Love** (University of Queensland, Brisbane), **Kamilla Pawłowska** (Adam Mickiewicz University, Poznań)

The aim of this paper is to provoke further discussion on changes in the recently revised Çatalhöyük layout and its organization. In this context, the urge to establish a set of new methods and tools for stratigraphic and structural analyses is underlined. The authors describe the architecture temporally, as opposed to a set of static and generalized models. In particular, the issues of construction and subsequent various transformations of buildings and their surroundings are tackled. Consequently, the paper evaluates the architecture as a complex process in which experience and technical skills of the inhabitants had coexisted with rites and principles of socio-cultural nature as well as environmental conditions. The study of specific and often disregarded contexts and materials provides evidence of the complexity of Çatalhöyük community and allows to highlight a role of inherited and nurtured Neolithic traditions. Utmost attention is paid to building materials, techniques and strategies as well as to deposits within foundation trenches, inter-wall spaces and unroofed areas. Furthermore, dilemma of multiscale and changing settlement pattern constitute major implements of presented subject. Therefore, the paper forms a revisal approach to research, in which buildings and open spaces functioned in a number of independent, but simultaneously interactive ways.

## Up In Flames': A Visual Exploration of a Burnt Building at Çatalhöyük

**James Taylor** (University of York, York), **Burcu Tung** (U.C. Merced), **Camilla Mazzucato** (Stanford University, Stanford), **Eleni Asouti** (University of Liverpool, Liverpool), **Amy Bogaard** (University of Oxford, Oxford), **Tristan Carter** (McMaster University, Hamilton), **Lilian Dogiama** (McMaster University, Hamilton), **Dorian Q. Fuller** (University College London, London), **Scott Haddow** (Cranfield Forensic Institute, Cranfield), **Christina Lemorini** (Università di Roma, Rome), **Jaqui Mulville** (Stanford University, Stanford), **Adam Nazaroff** (Stanford University, Stanford), **Serap Özdöl Kutlu** (Ege University, Izmir), **Duygu Tarkan** (Istanbul University, Istanbul), **Christina Tsoraki** (Leiden University, Leiden), **Katheryn Twiss** (Stony Brook University, Stony Brook)

This paper presents the results of a spatiotemporal study of a burnt building at the site of Çatalhöyük, South Central Turkey. Burnt structures are interesting on the site because of the unusual pattern of deposition of material culture at the final point of closure, as well as the potential for extraordinary preservation of organic remains not usually found elsewhere on the site. Using Building 77 (B.77) as a case study we have integrated specialist data relating to the material culture found in the final burning event, and its earlier occupation sequence, into a temporally enabled version of an intra-site GIS. This experimental appending of stratigraphic temporal data onto the spatial data is an unusual and innovative way to articulate space in time. Through the study and analysis of the material culture in relation to its spatiotemporal context we hope to gain some insight into the social identity of the building's residents throughout the life cycle of the structure. We use spatiotemporal animations to present the results of this collaborative study as a type of 'visual biography', more dynamic and nuanced than conventional phasing, that might be used to underpin and illustrate a social narrative of the building.

## The Late Neolithic Household at Çatalhöyük: Smaller, More Dispersed and More Independent Acquisition, Production and Consumption Unit

**Arkadiusz Marciniak** (Institute of Prehistory, University of Poznań, Poznań), **Eleni Asouti** (University of Liverpool, Liverpool), **Chris Doherty** (University of Oxford, Oxford), **Elizabeth Henton** (University College London, London)

The final three centuries at Çatalhöyük East mark a significant departure from the hitherto dominating neighbourhood community as an organizing principle of the local society and signal the emergence of autonomous differentiated households. They became smaller, more dispersed and more independent acquisition, production and consumption units. The paper will address multiple lines of evidence to explain the emergence of this new social system, its nature and mechanisms, and its consequences for the development of fully-fledged farming communities in the region and beyond. High resolution archaeological and archaeobiological data permit tracing changes in procurement, production and consumption during this period. In particular, new strategies for the acquisition of clay for mudbrick production and wood for fuel and fodder reveal changes in land use around the site. These patterns are supported by the recognition of new modes of caprine herding evidenced through oxygen isotope analyses. Changes in the consumption regimes will be investigated by wood use, house building, and eating practices.

## Reading the Stones, Reading the Bones: An Integrated Approach to Reconstructing Activity Patterns at Neolithic Çatalhöyük

**Christina Tsoraki** (Leiden University, Leiden), **Lilian Dogiama** (McMaster University, Hamilton), **Joshua W. Sadvari** (The Ohio State University, Columbus), **Christopher J. Knüsel** (Université de Bordeaux, Bordeaux)

Analyses of material culture and human remains uncovered at the Neolithic site of Çatalhöyük have, thus far, suggested that the daily lives of men and women did not differ greatly. However, indirect evidence seen in the site's figurative rep-

representations, including wall paintings and figurines, has contributed to earlier interpretations associating males with wild animals (and hunting activities) and females with plants (and agricultural activities). The present study seeks to re-examine whether activity-related divisions along gender lines actually existed at Çatalhöyük. Markers of habitual mechanical stress, workload, and postural behavior directly observable on human remains integrated with data derived from the chipped stone and ground stone assemblages provide the basis for a better understanding of the activities in which Çatalhöyük's inhabitants regularly engaged. Specifically, pertinent data from the obsidian projectile point assemblage elucidates hunting practices (e.g., use of bow and arrow vs. spear). Similarly, variations in the size and morphology of grinding tools, such as one-hand or two-hand manos, suggest differences in the kinetics involved during grinding activities (e.g., reciprocal vs. rotary grinding). The integration of people, objects, and practices greatly clarifies gender roles in past societies.

### **Lipids in Archaeological Pottery as Multi-Proxy Recorders of Subsistence and Environmental Change at Çatalhöyük**

**Richard P. Evershed** (University of Bristol, Bristol), **Mélanie Roffet-Salque** (University of Bristol, Bristol), **Sharmini Pitter** (Stanford University, Stanford), **George Watson** (University of Bristol, Bristol), **Mark S. Copley** (University of Bristol, Bristol)

Organic residue analysis is now accepted as a major investigative approach in archaeology being regularly considered in research programmes. In this respect archaeological pottery in particular is proving to be a remarkable conduit for proxy information relating not only to individual vessels and/or typological groups, but also to the wider aspects of economy and environment. Lipid residue analyses of pottery recovered from the extensive excavations at Çatalhöyük are showing the value of the long stratigraphic sequence for exploring chronological variations using established proxies (fatty acid  $\delta^{13}C$  values) but also to test new approaches, such as compound-specific deuterium isotopes of fatty acids as recorders of local climate. In this paper we will present integrated molecular and isotopic records from ca. 500 potsherds sampled and analysed across the stratigraphy. The variations in the lipid residue compositions will be considered in relation to on-site ecofactual and artefactual records and off-site sedimentary archives. Potential avenues of future development of these approaches and the potential for integrating the lipid residue proxy records with emerging datasets will also be explored.

### **The End of the Neolithic Settlement: Çatalhöyük and Its Neighbors**

**Serap Özdöl Kutlu** (Ege University, Izmir), **Tristan Carter** (McMaster University, Hamilton), **Katheryn Twiss** (Stony Brook University, Stony Brook), **Kamilla Pawłowska** (Adam Markiewicz University, Poznań), **Duygu Tarkan** (Istanbul University, Istanbul), **Lech Czerniak** (University of Gdańsk, Gdańsk), **Arkadiusz Marciniak** (Institute of Prehistory, University of Poznań, Poznań)

Occupation at the once-vibrant mega-city at Çatalhöyük (7400-6000/5950 BC) was slowly coming to an end. The final four centuries of its existence were characterized by significant social and economic transformations, manifested materially in new spatial organization, patterns of architecture, and burial practices, as well as in chipped stone and pottery manufacture. The causes of these dramatic changes remain largely unknown. It is unclear whether they were the outcomes of internal processes or attributable to external influences. This paper investigates different models of change in order to explain the demise of this large urban center. We compare and contrast developments at Çatalhöyük with those in other areas of the Anatolian plateau and western and northwestern Anatolia. We ask whether Çatalhöyük was a central settlement in the Early Neolithic, and did it manage to preserve its position in the Late Neolithic? Did Çatalhöyük not adopt many of the developments taking place elsewhere in Anatolia at that time, and thus find itself outside of regional development trends? We use multiple data sets from Çatalhöyük and other Anatolian settlements to assess inter-site differences in lifeways and modes of resource procurement, consumption and distribution.

### **Re-Assembling the Çatalhöyük East and West Mound Material Culture: How the People from the West Mound Interacted with the Already Ancient East Mound**

**Jacob Brady** (University at Buffalo, Buffalo), **Peter F. Biehl** (University at Buffalo, Buffalo), **Ingmar Franz** (Institute for Prehistoric Archaeology at Freiburg University, Freiburg), **Goce Naumov** (Scopje University, Scopje), **David Orton** (University College London, London), **Sonia Ostaptchouk** (Flinders University, Bedford Park), **Jana Rogasch** (University College London, London), **Eva Rosenstock** (Oxford University, Oxford), **Philippa Ryan** (University at Buffalo, Buffalo), **Elizabeth Stroud**, **Patrick Willett**

This paper discusses the phenomenological and functional aspects of living with the ruins of the settlement on the East Mound (EM) at Çatalhöyük and its agency, maintaining a rich dialogue with later communities in the Konya plain. Çatalhöyük is a unique Neolithic and Early Chalcolithic site in Anatolia for many reasons, especially for the fact that the site consists of two mounds very close to each other. It explores the possibility of re-assembling material culture from both mounds and demonstrates with examples that the people of the West Mound (WM) collected materials from the EM, both

in the form of durable, usable objects intentionally collected for use and objects from the EM that were relocated to the WM as the result of other processes. The variation in the types of tools, raw material, and use of such objects contrasted with the larger dataset of WM tools provides insight into the interaction between the people living on the WM and the abandoned EM. We aim to explicate the relationship of the WM with the EM using excavation data and laboratory analysis of objects, thus demonstrating that the EM remained an active and important part of the daily and spiritual lives of the people of the WM.

### **Burials, Settlement and Communities at 1st and 2nd Millennium AD Çatalhöyük**

**Sophie Moore** (British Institute of Archaeology in Ankara, Ankara), **Michelle Gamble** (Independent researcher)

Above both the East and West mounds of Neolithic Çatalhöyük is a cemetery which was in use periodically throughout the first and second millennium AD. Over 280 individuals have been excavated from this historic period cemetery. This paper will summarise current research on the cemetery drawing together disparate strands of evidence from excavation, osteology and survey. Primarily we will present a typology of graves for historic period burials at the site before moving on to presenting the results of the osteological analysis of a sample of these graves (n=80) from the 4040 Area of the North Shelter, including a comparative discussion of changes in burial demography through time. Finally we will draw on the results of a survey conducted in 2013 which aimed to locate the settlement related to the cemetery in the immediate vicinity of the mound. The first and second millennium AD occupation of Çatalhöyük raises questions of continuity, memory and sense of place in the landscape of the Konya Plain, as well as demonstrating the potential of bio-cultural approaches to osteology in the discussion of past communities.

## **POSTER**

### **Fifty Years of Visualization at Çatalhöyük**

**Jason Quinlan** (Çatalhöyük Research Project, Konya), **Colleen Morgan** (University of York, York)

Çatalhöyük, a spectacular archaeological site in central Turkey, has been the subject of visual interpretation for half a century. From Ian Todd's photography performed during James Mellaart's 1960s excavations to Ian Hodder's work since 1993, a vast visual record has accumulated of over 100,000 images. The collection records not only site excavation and finds but also embedded changes recorded in the archive's collective "metadata" in both technical and theoretical approaches to site photography over time. In this poster we explore the changes in technology, methodology and theory at the site as seen in the changing modes of visualization at Çatalhöyük. Through quantitative and qualitative analyses of the visual record, we provide insights regarding the contrasting archaeological processes at the site. Finally, we look to the future of visual interpretation at Çatalhöyük.



## **T06S004 - LANDSCAPE AND HISTORY AT THE LYCOS VALLEY: LAODIKEIA AND HIERAPOLIS IN PHRYGIA**

**Organizer: Celal Şimşek** (Pamukkale University, Archaeology Department, Denizli)

Laodikeia and Hierapolis are situated at the crossroads of main routes that connect western, central and southern Anatolia with each other. Set amidst the fertile plains of the Lycos Valley and River, Laodikeia lies on a high plateau surrounded on three sides by rivers: the Lycos to the northeast, the Kadmos to the southeast and the Asopos to the northwest. Laodikeia is located on the borders of the villages of Eskihisar, Goncali, Korucuk and Bozburun, six kilometres north of the modern city of Denizli. The site is on the road to Pamukkale (Hierapolis), which is approximately ten kilometres to the north. Laodikeia is one of the important archaeological remains for the region along with Hierapolis (Pamukkale) and Tripolis. The life of the Lycos Valley's settlements continued without interruption from 5500 BCE to the 14th century CE. The settlements developed especially during the Hellenistic and Roman Imperial Periods when it became a center of trade, art and culture.

## **ORAL PRESENTATIONS**

### **History and City Planning System of Laodikeia in the Light of the New Evidence**

**Celal Şimşek** (Pamukkale University, Archaeology Department, Denizli)

Laodikeia is located on the borders of the villages of Eskihisar, Goncali, Korucuk and Bozburun, six kilometers north of the modern city of Denizli. The Hellenistic city was founded by Antiochus II in the name of his wife Laodike around the middle of the third century BCE. The city was designed with a Hippodamian plan. Throughout its history Laodikeia suffered many earthquakes and was rebuilt numerous times. It was finally abandoned after a severe earthquake in the reign of Focas (r. 602–610 CE). Its citizens settled at Denizli – Kaleiçi and Hisarköy on the north slopes of Mt. Salbakos after the city's abandonment. Laodikeia was one of the Seven Churches named in the Book of Revelation and later became a metropolitan city

in the Early Byzantine period. Excavations at Laodikeia show that the city was settled continuously from the Chalcolithic Period (5500 BCE) to 7th century CE. The name of the settlement was, in turn, Rhoas, Diopolis and finally Laodikeia. Civic planning during the Hellenistic and Roman Periods city was highly organized. The city was planned along a grid system with main and side streets crossing each other. The city plan consisted of insulae measuring 42 x 51-53 meters. Religious, civic, and common structures were built in these insulae. Colossal baths located in the central, eastern, and western areas were connected to the agoras. The stadium, located at the southern side of the city, and the west and east theatres, located at the city's northern side, show the importance placed on the beauty of communal living, art, sport and civic space. Shops were built along the perimeters of the peristyle houses bordering its streets.

### **Nature and Cult in the Plutonium of Hierapolis. Before and After the Colony**

**Francesco D'Andria** (Salento University, Lecce)

The site of Hierapolis is characterised by extraordinary natural processes that have produced the landscape of white travertine cascades from which the name Pamukkale ("castle of cotton") derives. These phenomena are caused by the presence of an active seismic fault running across the site. The cracks in the terrain are seen in the thermal springs, with intense emissions of noxious gases (particularly carbon dioxide, which in some points is much more abundant than oxygen). Since ancient times these exceptional natural phenomena have exerted a powerful fascination; numerous writers have described them, frequently associating them with the presence of the Sacred. In the first century BC Strabo wrote of a site near a cave with a sanctuary dedicated to the gods of the Underworld, from which it took the name Plutonium. Strabo notes that as birds drew near the cave they were asphyxiated by the emissions and he describes bulls being sacrificed by bringing them to the cave so that they were killed in the same way. In 2012 the excavations conducted by the Italian Archaeological Mission made it possible to identify the sanctuary, bringing to light the entrance to the cave, marked by a dedicatory inscription to Pluto and Kore. Intensive excavations in the area brought to light the whole of the sacred complex, characterised by the presence of the *theatron* (described by Cassius Dio), a *tholos*, the *temenos* and numerous votive deposits and hearths (*escharai*).

### **Lykos Valley in the Second Millennium BC**

**Erim Konakçı** (Pamukkale University, Denizli)

Maiandros River from the south of Adıgüzel Dam towards west, and flowing through Güney town, forms a large floodplain after Yenicekent. Çürüksu Valley, laying between Honaz and Sarayköy, joins Maiandros Valley around Sarayköy. The vast plains laying to the east of the junction of Büyük Menderes and Çürüksu is known as the Lykos Valley, hosting the Denizli and Sarayköy plains. Although, the researches in the Lykos Valley goes back to the 17th century AD, and the curiosity of European aristocracy about the cities mentioned in the Bible or the classical texts like Strabon, Vitruvius etc, the focus of these were mostly limited to the great Roman metropolises such as Laodikeia or Hierapolis, and the prehistoric cultures of the region were not properly documented. This study aims to make an understanding of the historical geography of the region, and analyses the habited mounds, during the 2nd millennium BC. In this period, the Lycos Valley is located within the Arzawa Lands. However, since the archaeological excavations within the scope of this period in the region are only at Laodikeia-Asopos Mound.

### **Tabernae In Roman Tripolis Ad Maeandrum**

**Bahadır Duman** (Pamukkale University, Denizli)

The ancient city of Tripolis is located in the town of Buldan in the Denizli Province. The Columned Street which runs in a north-southerly direction, located in the south of the city, is 450 m long. It has only partially been excavated and it has a width of 10 m. However, in the 4th century A.D., fortification walls were built on its north, thus bringing its width down to 7 m. In the northern adjoining part of the Columned Street, the southern façades of the tabernae destroyed by the earthquake that occurred probably in the 3rd quarter of the 3rd century A.D. were closed by the fortification wall in the Late Roman Period. The period when the tabernae began to be used again following the major earthquake contains essential information on the construction of the fortification walls and tabernae. The discussion on the history of Roman tabernae is located at the intersection of architectural and economic history. This article aims to make statements of tabernae on the economic and architectural history of Tripolis. The data presented in this article analysis makes clear that the commercial landscape character of the city fundamentally changed between 1- 4 the century A.D.

### **Marmora Phrygiae Project: The Contribution of Landscape Archaeology in the Territory of Hierapolis in Phrygia to the Reconstruction of Building Sites in the City and Their Strategies of Supplying Stone Materials**

**Giuseppe Scardozzi** (CNR-IBAM, Lecce)

Since 2013, the Italian Archaeological Mission at Hierapolis is carrying out a research project (Marmora Phrygiae) aimed to the petrographic and geochemical characterization of alabaster (banded travertine, i.e. the marmor hierapolitanum



mentioned in Roman and Byzantine literary sources) and marbles (white and grey) extracted from the numerous ancient quarries identified in the territory of Hierapolis (in the area immediately surrounding the city and in the Gölemezli and Thiounta areas), thanks to a large and systematic sampling; the samples are analyzed in their mineral-petrographic and physical-chemical characteristics (cathodoluminescence, C-O stable isotopic analyses, EPR spectroscopy). The project is also aimed to the study of ancient building sites in Hierapolis (planning, architectural, organization and legal aspects) and their strategies of supplying stone materials, both local and imported (for example from Dokimion and Aphrodisias); so, the sampling have concerned even the monuments in the city. All the collected data are implemented in an opensource geodatabase web-oriented; it is aimed to the data management and integration, and it will also constitute an important research tool for the study of precious stones utilized in the ancient cities of the Lykos valley or the exported ones, such as the alabaster of Hierapolis, that was used in Rome, Constantinople and in numerous cities of the western Mediterranean basin.

### **Palaeo-Vegetational Reconstructions in the Lycos Valley by Archaeobotanical Analyses at Hierapolis**

**Girolamo Fiorentino** (University of Salento, Lecce), **Cosimo D’Oronzo** (University of Salento, Lecce), **Francesco Solinas** (University of Salento, Lecce)

In this paper we present the results derived from archaeobotanical analyses performed in some areas of the ancient city of Hierapolis: Apollo Sanctuary, Insula 104 and the Cathedral. The analyses shed new light on the vegetation history of the Lykos valley and the exploitation of plant by community from the roman period to byzantine age. The anthracological analysis reveals the presence of taxa linked to riparian area, plateau and fields and probably sacred gardens. Some species have been used as fuel in ritual context, while others taxa were employed as structural elements.

### **Minero-Petrographic and C-O Stable Isotopic Characterization of Antique Marble Quarries in the Denizli Region (Western Anatolia-Turkey)**

**Tamer Koralay** (Pamukkale University, Denizli), **Sanem Kılınçarslan** (Pamukkale University, Denizli)

The marbles are widely used rock types in the structures of today and ancient world. In this study, two ancient marble quarries named as Hierapolis and Domuzderesi in Denizli region, have been examined. The marble samples from these quarries can be grouped into three types, based on color, crystal size, crystal boundaries and foliation status. These groups are identified as white, gray veined and gray marbles. In terms of microscopic features, heteroblastic polygonal (white marbles in Hierapolis, gray veined and gray marbles in Domuzderesi) and homeoblastic polygonal textures (white marbles in Domuzderesi) have been defined. The mineral compositions of all marble groups are quite similar. They are consisting predominantly of carbonate minerals (calcite, dolomite) and, as accessory minerals quartz, muscovite, pyroxene and ferric iron oxides. These results are also supported by the XRD studies. According to the geochemical analyses, protoliths of Hierapolis and Domuzderesi marbles are limestone. In Hierapolis marble quarry, the  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  values change between 0.63 - 3.52 ‰ and (-9.55) - (-1.21) ‰, in turn. The  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  values of Domuzderesi marble quarry range from (-1.44) ‰ and 3.41 ‰, -13.26 ‰ and (-5.3) ‰, respectively. Minero-petrographic, geochemical and C-O stable isotope results reveal that Hierapolis and Domuzderesi ancient quarries have similar characteristics which have originated from a same protolith.

### **Provenance of Banded Travertine from Tripolis Antique City (Yenice/Buldan - Denizli) Based on the Minero-Petrographic and Geochemical Characterization**

**Tamer Koralay** (Pamukkale University, Denizli), **Yusuf Kağan Kadioğlu** (Ankara University, Ankara), **Kıymet Deniz** (Ankara University, Ankara), **Bahadır Duman** (Pamukkale University, Denizli)

Magnificent images of rocks, used in buildings and monuments, are an indicator of power and wealth since ancient times. This situation always has attracted the attention of mankind. Having rich marble and natural stone source in Anatolia, several civilizations has created important works by using of this wealth throughout the history. The banded travertine blocks which are various colors and textures, have been used in the structures of Tripolis ancient city. In this study, minero-petrographic and geochemical characterizations of banded travertines have been examined and compared to ancient travertine quarries samples in order to define source area. All the banded travertine samples are mainly composed of carbonate minerals (calcite or aragonite?) in acicular or radiating form. In addition, some of the element ratios for Tripolis and ancient travertine quarries samples are very close to each other ( $\text{Mg}/\text{Ca}$  = 0.000284-0.002898 for Tripolis samples, 0.000288-0.001958 for ancient quarry samples;  $\text{Mn}/\text{Sr}$  = 0.000548-0.010348; 0.000281-0.052575;  $\text{Rb}/\text{Sr}$  = 0.000579-0.000818; 0.000581-0.001523;  $\text{Zr}/\text{Ti}$  = 5.29-20.24; 2.48-27.80;  $\text{Nb}/\text{Y}$  = 3.82-4.75; 2.93-5.00, respectively). According to the minero-petrographic and geochemical results, the most probable source of banded travertines in Tripolis is the ancient travertine quarries, about 3 km northeast of antique city.



## T06S005 - IMPACT OF THE FALL OF COMMUNISM ON EUROPEAN HERITAGE

**Organizers:** **Valerie Higgins** (The American University of Rome, Rome), **Maja Gori** (Ruprecht-Karls University Heidelberg, Heidelberg)

2014 marks 25 years since the fall of the Berlin Wall. This session will examine how heritage in Europe has adapted during this period. How the narratives of communism that influenced interpretations of the past have been revised and how the heritage of the communist period is received. It will also examine how heritage is now funded and how this has influenced the type of heritage that is protected. It will also examine the role of heritage in the forging of new identities at a local, national and trans-national level.

### ORAL PRESENTATIONS

#### **History of Archaeology in the Post-Soviet Russia: Reopening of the Past**

**Andrey Shamanaev** (Ural State University, Yekaterinburg)

The history of the Russian archaeology has a specific destiny in a home tradition. During the Soviet period, this field was terra incognita, but uninteresting, wretched and some time dangerous. Pre-revolutionary Russian archaeology was declared as a "servant of the exploitative classes". Many Soviet archaeologists were repressed. Thus the emigrants and political prisoners were unattractive persons for investigations. The ideological limits were broken after the fall of the communist regime. The Russian archaeologists rediscovered their past science. First of all, there were published the reviews of history of the Pre-Soviet (G. Lebedev) and Soviet (L. Klein) archaeology. Special attention was paid to the biographies of archaeologists - victims of political repression. Currently the new tendencies arose: biographies of the 19th century archaeologists; archaeological institutes and institutional practices, research methods and protection of the archaeological heritage. However an objective analysis is replaced with complimentary estimates very often. As a result, there are "shadow periods". For instance, late Soviet time (1960-1980s) is under this condition.

#### **Archaeology in the Adriatic: From the Dawn to the Sunset of Communist Ideologies**

**Elisa Cella** (Sapienza University of Rome, Rome), **Maja Gori** (Ruprecht-Karls University Heidelberg, Heidelberg), **Alessandro Pintucci** (Sapienza University of Rome, Rome)

In this paper the relation of Italian archaeology with the Eastern Bloc will be explored. In particular, emphasis will be given to the analysis of archaeological and cultural policies of those countries which share a border with Italy, i.e. Albania and ex-Yugoslavia. The relation of Italian archaeology with Albanian and Yugoslavian ones will be analysed through a diachronic perspective, starting from the early 20th century. In particular, the role of archaeology as device of soft power in the domestic and foreign policies of Italy, Albania and Yugoslavia will be investigated, aiming at disentangling the theoretical approaches adopted in archaeological research from the political orientations ensuing from the rise and the fall of Communist and Socialist regimes.

#### **The Trowel and the Sickle. Italian Archaeology and Its Marxist Legacy**

**Elisa Cella** (Sapienza University of Rome, Rome), **Maja Gori** (Ruprecht-Karls University Heidelberg, Heidelberg), **Alessandro Pintucci** (Sapienza University of Rome, Rome)

The presence of western world's larger Communist Party soundly influenced Italian archaeology. Indeed, several scholars were deeply swayed by its ideology, which was perceived as means to enfranchise the discipline from the old academia. In particular, the inability of the mainstream academia to channel the different components present in the Italian archaeology into an organised society, resulted in the creation of two independent groups: *Dialoghi di Archeologia*, formed by classicists, and *Centro Studi per la Protostoria*, formed by prehistorians. Those groups, two of the most influential in Italian archaeology, were ideologically sided with Italian Communist Party and close both to classic and heterodox Marxism. In this paper the development of Italian archaeology will be discussed through the compared historical analysis of those groups, from their formation to their definitive transformation at the beginning of the 1990's, which coincided with the dissolution of the PCI (Italian Communist Party). In particular, this paper wants to address and discuss the gradual ideological and methodological deviation from Marxist ideology, which resulted in the exhaustion and stagnation of the theoretical debate. The lack of self-reflexive critical re-examination of the discipline as a whole characterizes Italian archaeology since more than twenty years.

#### **Heritage Rights and Communities in Post-Communist Albania**

**Dana Phelps** (Stanford University, Stanford)

This paper explores how heritage rights and local communities are connected in the archaeological management processes in post-Communist Albania. Particular emphasis is placed on the UNESCO World Heritage sites of Butrint and Historic Cent-

ers of Berat and Gjirokastra. In a country whose history is dominated by occupation by foreign powers, Albania is currently in the process of staking claim on its heritage. Living within Albania's two UNESCO World Heritage sites are communities that struggle with such issues as discrimination, poverty, minority rights, displacement, and identity concerns. How is the ever-present question of heritage rights balanced with concern for the communities' own struggles? Based on ethnographic research conducted between 2010 and 2013, this paper intends to reveal what the impact has been thus far from the inclusion of these communities in Albania's archaeological heritage management as well as what issues have arisen that need to be addressed in the future at both the micro and macro levels by local management, NGOs, and multilateral organizations holding a stake.

### **Archaeological Patrimony as Nation-Building: Case Studies in Bulgaria and Romania**

**Eric C. De Sena** (American Research Center in Sofia, Sofia)

Archaeology has always been used to help develop local and national identity. In the Balkans, this is particularly evident, as modern nations, such as Bulgaria and Romania, sought to establish their nation, setting themselves apart from each other and from former dominators. While both countries possess histories that extend back to the Paleolithic, Bulgaria sees its founders in the Bulgars, whose first kingdom was established in AD 681, while Romania associates itself with a presumed post-Roman hybrid, the Daco-Romans. Excavations between the 1950s and 1990s highlighted medieval sites in Bulgaria and Dacian and Roman sites in Romania. Only recently have scholars focused greater attention on other periods of history. This paper presents case studies from Bulgaria and Romania which reflect the notion of maintaining national identity through the presentation of archaeological sites: Pliska, in eastern Bulgaria, served the first Bulgarian kingdom; Tsarevets, in central Bulgaria, represents the second Bulgarian kingdom; Sarmizegethusa, in central Transylvania, represents the Dacians; Porolissum, in northwestern Romania, represents the Roman and post-Roman phases. In all instances, sites have been reconstructed; on-site didactic panels highlight key information, while omitting some "inconvenient" historical information. In some cases, popular re-enactment groups celebrate national origins.

### **Communist Heritage in Post-Communist Countries: A Case Study from Albania**

**Francesco Iacono** (UCL, London), **Klejd Kiellici** (University of Bari, Bari)

Amidst the multifaceted heritage discourses emerged in ex-east bloc countries through the last two and a half decades, there is one that, for obvious reasons, has been conspicuously absent. This is related to the monumental heritage of the most recent past of ex-communist countries, i.e. to the period of socialist regimes. All over central and eastern Europe, monumental traces of this critical historical phase are notable but thought to be seen with suspicion from inhabitants of these countries. Notions of unwanted or contested heritage developed for these as well as for other contexts can help us to better understand the complex and yet unavoidable relationship between these monuments and the collective memory of ex-eastern bloc countries. In this paper we will try to address these issues through the case study of the Pyramid, a building in Tirana, Albania that is both a very much laden relic of the regime and, at the same time, a familiar element of the landscape of the capital. We will combine a thorough theoretical and historical analysis with the discussion of the results of a recently completed survey aimed at exploring the opinions of the public on this issue.

### **Exploring Approaches to Italian Early Medieval Archaeology in Post Communist Europe**

**Giulia Vollono** (University of Sheffield, Sheffield)

Historically, studies of the Italian Early Middle Ages have been characterised by intermittent popularity and critical research. This fluctuation, which has impacted upon the archaeological agenda for over a century, is intertwined with questions surrounding Italian identity and the role that the 'Barbarians' and 'Romans' played in its construction. What is frequently overlooked is the influence that modern socio-political concerns have had upon interpretations of the centuries immediately after the fall of the Roman Empire. This paper seeks to engage with a previously unexplored facet of this relationship and focus on developments in the field in the post communist era. I will examine how the theoretical frameworks used to interpret the archaeology of Early Medieval Italy have changed over the last 25 years and how these changes are related to the wider European situation. Furthermore, I will discuss the role that archaeological evidence has played in the construction of a trans-national European narrative while maintaining a central role in the negotiation of local identities. The ultimate aim of this paper is to re-evaluate the latest developments in Italian archaeology from a fresh perspective, considering the impact that major contemporary events can have on our perception and interpretation of the past.

### **Picking up the Pieces, Traces of the Communist Past in Bucharest and Berlin**

**Laura Demeter** (Institute for Advanced Studies, Lucca)

Starting from the statement within the discourse on heritage formation that not everything is heritage nor will end up acquiring the status of heritage, but anything has the potential to become heritage, in my presentation I am interested in

identifying the mechanisms involved in the process of creation of 'heritage' when particularly dealing with the material assets of the communist past. One central problem to be presented is how historical assets are negotiated and constructed as culturally valuable and how are they being incorporated, perceived and preserved as components of the national cultural heritage. Hence, I am interested not only in identifying the role of memory recollection in the process of engaging with the past but also in highlighting when, what and under which circumstances the tangible legacy (meaning historical objects and buildings) of a still highly debated and contested political regime is in the process of being identified, recognised and treated as heritage of the past. Since the amount of material presence from the communist past is enormous, I will focus my presentation on two particular sites of historic interest, namely the civic centre in Bucharest, The Victory of Socialism and the civic quarter of Friedrichshain in Berlin.

### **Heritage as Tangible Acts of Change**

**Liliana Janik** (University of Cambridge, Cambridge)

The fall of Berlin Wall, perestroika, and the processes of democratisation that swept across post Soviet Europe and Russia itself, brought new, often alien concepts and demands on heritage, archaeology and those who interpret the past. These new times, expectations within the old intellectual framework of academia, and the changing role of the archaeologist created often unexpected alliances. Could the 'market economy' provide for the protection and monitoring of ancient monuments? How could the voices of local communities concerned about 'their' heritage be incorporated into the histories of nations, especially when the monuments in question were created by peoples who no longer lived in this landscape? How did the process of democratisation empower the local groups in creating alternative structures for protecting local heritage? These are the issues discussed in this presentation in the context of the prehistoric rock art of the White Sea that in recent years has become a stopping-off point for tourists following the Gulag Archipelago described in Solzhenitsyn's Nobel Prize winning novel "One Day in the Life of Ivan Denisovich".

### **Art of the Epoch: Contemporary Art Museums in the Former Yugoslavia**

**Matthew Webber** (UCL, London)

This paper explores the interaction between contemporary art museums and political discourse in the former Yugoslavia. I argue that these museums act as powerful symbols of these countries' post-Communist identities. The past 25 years has seen the opening of many museums of contemporary art in the ex-Eastern Bloc (Lorente, 2011; Pierantoni & Tali, 2011). These institutions have a pivotal role in the articulation of political, social, and cultural priorities, being directly implicated in post-conflict reconciliation, economic reform, Europeanisation, and nation-building (Bougarel et al, 2007). Further, they act as important loci of interaction between international actors, national governments, artists, and local communities. This paper is the outcome of ethnographic fieldwork conducted in BiH, where a new museum of contemporary art is planned to open in 2014 (see <http://www.arsaevi.ba/>). This research has engaged with both the museum and several 'generations' of artists working in Sarajevo. In comparison to archaeological museums, museums of contemporary art remain understudied. Yet, often they have been the most expensive buildings erected in post-Communist countries, and their focus on the contemporary gives them an immanence less directly found in historical collections. Thus, their analysis promises to directly illuminate contemporary discourses, and potentially novel modes of nation-building.

### **Are We Still Illyrians? Changing Perception of the Past in Albania**

**Valerie Higgins** (The American University of Rome, Rome)

Under Communism the purpose of archaeology in Albania was clear, it was used to support a political agenda, which reinforced national identity linked to the Illyrians. The research presented in this paper explores the current motivation for young people to pursue archaeology. Survey data collected from undergraduates and recent graduates of archaeology will be presented which aims to illuminate this theme. Topics to be examined include issues such as the current perception of identity particularly with respect to the Illyrians and the attitude of young people towards Cold War heritage.

### **Roman Emperors and Identity Constructions in Modern Serbia**

**Zorica Kuzmanovic** (University of Belgrade, Belgrade), **Vladimir D. Mihajlovic** (University of Novi Sad, Novi Sad)

Drawing on the constructivist approach to heritage that defines it as a form of constructed memory relating to contemporary social circumstances, we attempt to outline the key agencies and processes shaping the reception of the Roman heritage in contemporary Serbia. The public sphere in Serbia has become freighted with the narrative of Serbia as 'homeland of Roman emperors' and about cultural identity based on Roman heritage in the last few years. Starting from the assumption that perception of heritage and context in which it is perceived are mutually dependant, our intention is to raise the question whether the increasing popularization of the Roman heritage in contemporary Serbia reflects an attempt to reestablish national identity in the period of the country's social and ideological transition over the last two decades.



## **T06S006 - ROUND TABLE OF THE COMMITTEE FOR TEACHING AND TRAINING OF ARCHAEOLOGISTS (Round Table Session)**

**Organizers:** Marc Lodewijckx (Leuven University, Leuven), Ian Ralston (University of Edinburgh, Edinburgh)

Elaborating on the agenda of last year's session in Pilsen on the variability of the subject and content of a PhD, the committee wants to explore further the mutual relationship between the student and the supervisor. We welcome papers which illustrate best practice in undertaking, supervising and examining a PhD. Themes may include: • the relation of both the student and supervisor to the topic, • the nature of the relationship between the student and the supervisor: who takes the decisions?, • discussions of the organisation of PhD supervision and examination, especially regarding those systems where PhD study can take place outside a University, • the relation of the student and the supervisor during the examination process, • solutions (formal and informal) to deal with interdisciplinary PhDs that require skills from at least two (if not more) different disciplines as well as practices/policies for selecting/appointing external reviewers, • the relation of PhDs to professional practice, • the relation of PhDs to an academic career.

### **Advising PhDs: Between Wild West and Shared Responsibility**

**Gonzalo Ruiz-Zapatero** (Universidad Complutense de Madrid, Madrid)

Supervising Spanish PhDs in Archaeology is an area quite deregulated in real terms of what really you have to do but with an inefficient tremendous bureaucracy. It is the Wild West, where the good (graduate student) feels abandoned without clear advises, the ugly (supervisor) usually guides just by routine and the bad (administration) don't really know what getting a PhD means. So the present academic scene is not very stimulating. I have some points for contributing to a stronger, more rational and even passionate debate for advising (better than supervising) a PhD in archaeology. My proposal is rooted in the conviction that a good PhD is based on passion, humility, commitment and determination on the graduate side. It develops in eight steps: 1) how to select a topic, 2) making a thorough temporal planning, 3) establishing standards and making a shared commitment, 4) selecting the most effective personal way of having sessions, 5) assessing the process of researching, management of data and specially academic writing, 6) offering special support in the final stage, 7) preparing seriously the Viva and 8) approaching the possible strategies for publishing the PhD. Publication must be the true final step.

### **An Unequal Relationship: The PhD Student and Their Supervisor**

**Mark Pearce** (University of Nottingham, Nottingham)

On one level the relationship between the student and their supervisor is an unequal power relationship, open to abuse. On the other hand the writing of the PhD can gradually change the balance of power, and one might expect the student at some point to surpass their teacher in their knowledge of the specific topic. The supervisor on the other hand has the benefit of context and (in theory) wider knowledge. In this paper I shall examine this power relationship, focusing on what happens when the relationship breaks down and how this can be mitigated. I shall also discuss the relationship after the examination, where in some systems the supervisor maintains an academic role in the life of their former student. Finally I shall explore the question of the ownership of the ideas developed during the PhD programme and the thorny issue of authorship of papers deriving from the dissertation.

### **Joint Supervision of a PhD Student in Frames of European Academic Mobility Programs: Pre-Conditions, Mechanisms and Outcomes**

**Olena Smyntyna** (Odessa National I.I. Mechnikov University, Odessa)

Subject of current contribution is to compare existing strategies of PhD students' recruitment in frames of degree (long-term) and non-degree (short term, 1-10 months) academic mobilities sponsored by European community (Erasmus, Erasmus Mundus and Erasmus+) applied for students coming from partner (i.e. non-EU) countries. Basic difficulties for PhD students and their home and host supervisors in frames of personal grants, grants in frames of consortium of Universities and grants on the basis of bilateral agreements are discussed. Joint PhD supervision is proposed to be understood as secure mechanism for development of short-term mobility grant into final PhD degree based on mutual recognition of examinations and/or thesis discussion and resulting in establishment of durable scientific cooperation between institutions engaged in the process.

### **N/A: Round Table Discussion**

**Hüseyin Çınar Öztürk** (University of Cincinnati Department of Classics, Cincinnati), **George Theodore Bruseker** (Independent Researcher)

Contemporary archaeology has the admirable ambition of questioning the limits of its own interpretations of the past. In order to realize these reconceptualizations, archaeologists have sought theoretical insight from sister disciplines. Witness

the many books summarizing social theory and philosophy for archaeologists alongside the rapid growth of archaeology theory courses. As a result, phenomenology, deconstruction, Bourdieu, and Bakhtin have become familiar ideas to many archaeology students. While archaeologists' efforts to push the theoretical boundaries of their discipline are laudable, this project also runs a serious interpretational risk. Philosophy and social theory are disciplines that demand close reading and in-depth analysis of original texts and a solid grasp of the history of the tradition. The danger of the over-easy application of summarized and abridged theory to archaeological practice is the addition of jargon and name-dropping to research that, far from being thus enriched, is made less clear and effective. As part of this session, we will try to display the pitfalls awaiting archaeologists in the application of philosophical and social theory to archaeological interpretation and will explore alternative educational paradigms for introducing theory into archaeological curricula in a way that would genuinely aid the testing of the limits of archaeological interpretation.



## **T06S007 - CENTRAL ASIA: CONTEXTUALIZING LOCAL DATASETS WITHIN BROADER SOCIAL PROCESSES**

**Organizers:** **Giedrė Motuzaitė Matuzevičiūtė** (Vilnius University/Institute of History of Lithuania, Vilnius), **Steven Markofsky** (Institució Milà i Fontanals, Barcelona)

Central Asia, situated at the so-called crossroads between East and West, is pivotal to understanding past and present human interaction. However, the focus on macro-scale questions such as those concerning Indo-European origins or regional diffusion has resulted in grand narratives that often lack the detailed archaeological datasets, particularly at the local level, necessary to support these models. As anthropologist A.Appadurai eloquently observes, geographies rarely represent persistent facts, and regions should therefore be seen not as static entities in which themes and processes simply exist, but fluid contexts in which they dynamically evolve. In this spirit, the goal of this session is to highlight local aspects of Central Asian archaeology in theory and practice, and to re-contextualize them within broader social processes. This session draws together papers from a wide range of Central Asian research and its focus on locality encompasses several key themes including human/environmental interaction and subsistence, social transformation, and cultural heritage in the way that local communities may relate to broad-scale archaeological narratives. Ultimately, the session seeks to foster new research paradigms for Central Asian research by shifting the focus from regional uniformity to local variability in order to improve the way we conceptualize archaeological research in the region.

## **ORAL PRESENTATIONS**

### **Revisiting Prehistoric Sites in the Darreh-Gaz (Dargaz) Valley: A GIS and Social Network Approach**

**Saeed Baghizadeh** (Islamic Azad University, Tehran), **Hamideh Kavuci** (Andishmand Institute of Higher education, Non-Profit and Non-Governmental, Lahijan, Rasht)

Using a variety of quantitative approaches, interactions between prehistoric sites in the Darreh-Gaz (Dargaz) valley and western-central Asia are modelled within their wider multi-regional and diachronic socio-economic networks to assess the prominence and influence of communities in western-central Asia from the Late Neolithic to the end of the Late Bronze Age (c. 6000–1500 BC). Since the 1950s, some have understood the valley as significant in terms of movement and communication through the central Asia that divides Iran from Central Asia. This view is called in to question through the application of geospatial and computational methods, namely least cost pathway and social network analyses. Archaeologists use least cost pathway analysis to model movement in the past. Similarly, social network analysis is used to model contact and interaction in the past. The approach adopted in this paper seeks to combine the two methods to investigate social structure and the nature of interaction in Prehistoric and Protohistoric western-central Asia. The results suggest that views of the Darreh-Gaz (Dargaz) valley as the primary or a prominent means of connecting the western-central Asia and Iran Plateau may need to be reassessed.

### **The Dynamics of “Metallification”: Exploring the Effects of Metal Flows in Bronze Age Central Asia and Western Anatolia**

**Toby C. Wilkinson** (Istanbul University/TÜBİTAK, Istanbul)

Pottery traditions of the ‘Namazga’ civilizations experienced a dramatic transformation in the mid 3rd millennium BC. Until then higher quality vessels of NMG III and IV (especially during the ‘Geoksyur’ era) were characterized by painted decoration whose patterns are seen in assemblages over a wide area of ‘Middle Asia’. The exact chronology remains unclear, but in a matter of no more than around 200 years, painted, mostly handmade wares, are replaced by unpainted, mostly wheelmade and highly standardized models. Different interpretations have been offered for this change: for example, that the speed of an industrial pottery manufacture associated with urban contexts reduced the ‘artistry’ of pottery work. A more persuasive explanation for the rise of these plain or, more accurately, high quality ‘unpainted’ wares may be as a kind of Central Asian



metallschock, the most famous example having taken place at around the same time in far-away Anatolia and Greece. Pottery shapes and ceramic aesthetics seem to take on metallic qualities, with equivalent actual metal versions being found occasionally to push home the point. Can the differences between these two distant instances of socio-economic ‘metal-lification’ allow us to identify ‘local’ qualities and priorities within ostensibly interconnected supra-regional processes?

### **Human and Plant Interaction Among the Bronze Age Pastoralists of the Tian Shan Mountain Region**

**Giedrė Motuzaitė Matuzevičiūtė** (Vilnius University/Institute of History of Lithuania, Vilnius)

The Bronze Age period in Kazakhstan and Kyrgyzstan is associated with a significant transformation in the societies of the region, encompassed in the transition from fishing and hunting subsistence to pastoralism. Domestic cattle breeding was considered the main human subsistence strategy in the grassland. The Central Tian Shan region of Kazakhstan and Kyrgyzstan, however, also constitutes a crossroad for movement of domesticated crops; western crops, such as wheat and barley, were spreading eastwards to China, while Chinese crops, such as broomcorn or foxtail millets, were arriving in Europe sometime during prehistory. It is still a subject of debate, however, whether domesticated plants were being consumed and grown or just traded in this region during the Bronze Age, as the role of domesticated crops and their intensity of consumption in pastoral societies has been overlooked and until now hardly studied. The newest stable isotope analysis of human collagen and archaeobotanical research from the Tian Shan mountain region of Kyrgyzstan and Kazakhstan provides a fuller picture of local pastoralists and their interaction with plant foods in prehistory. Such data allow us to move beyond human dietary reconstructions and to generate an overview of this topic in the wider contexts of archaeology: human interaction, environmental exploitation, plant movement, and complexity in society.

### **Exploring Micro-Environments in Late 2nd/ Early 1st Millennium BC Kazakhstan through Micro-Analysis**

**Rebecca Beardmore** (UCL, London)

When faced with an archaeological record which often consists of small settlements, widely distributed across a vast landscape, the task of understanding their relationship to each other must be carried out through a variety of analyses, including comparison of material culture, settlement patterns and the arrangement and construction of domestic architecture. This paper explores the contribution that phytolith analysis can bring to this research through a study of the relationship between the exploitation of micro-environments on and around an archaeological site and wider-scale human land use. By relating site-specific interpretations of the types of environment that were targeted by ancient human groups to macro-scale environmental data such as models of the ancient climate, topography, hydrology and elevation, it is possible to highlight similarities and differences between seemingly isolated sites in a vast landscape, including choices in site location, seasons of occupation and subsistence strategies. This approach seeks to analyse these settlements in terms of how human groups related to both their immediate environments and the wider landscapes in which they were situated, with the eventual aim of better understanding how these settlements may have related to each other through time and space.

### **Localised Variation in Caprine Bone Morphology in Late Bronze Age Kazakhstan**

**Ashleigh Haruda** (University of Exeter, Exeter)

Sheep and goat remains dominate zooarchaeological collections from settlements in Late Bronze Age Kazakhstan. Sheep and goat were the basis of subsistence for pastoralists across the steppe, despite the presence of other domesticated animals such as horse, cow, and camel. Regardless of the apparent uniformity of the steppe ecosystem, there are in fact ranges of microclimates spread from the foothills of the Dzhungar and Tien Shan mountains to the arid steppe that borders the Aral Sea. Variations to bone morphology in these specific microclimates contribute to better survival and reproductive success. For example, changes to joints can optimise movement up vertical slopes or across flat distances. Such changes could have come about in domestic sheep and goats through selective breeding by pastoralists or simply through natural attrition. Geometric morphometric methods, which are used to investigate fine variations in shape, were applied to zooarchaeological collections from three Late Bronze Age sites in southern and eastern Kazakhstan from different microclimates. Detailed analysis on the shape of astragali from *Ovis aries* and *Capra hircus* suggest that flocks were indeed morphologically different from each other. This hints at previously unexplored relationships between people, their flocks, and their relationship with the steppe.

### **Reviewing the Urban Pattern of the Oasis-Cities of Southern Tarim Basin**

**Emilia Smagur** (Institute of Archaeology Jagiellonian University, Kraków), **Kasper Jan Hanus** (Department of Archaeology the University of Sydney, Sydney)

Recent discoveries using LiDAR technology in Angkor (in which the second author was involved) have confirmed the earlier hypothesis that Angkor was a low density urban complex. This survey renews the discussion about the definition and char-



acteristics of low density urbanism. The same pattern can be found in other parts of the world; e.g. in the Maya lowlands or in Sri Lanka. However, as the definition of low density urbanism is still inconsistent, the role of comparative studies can be crucial for a better understanding of this phenomenon. The common features of such urban complexes are, among others, the presence of central clusters of monumental architecture, vast areas of cityscape incorporating agrarian lands and substantial water management systems. Similar patterns, albeit on a smaller scale, can be identified in the ancient cities of the southern branch of the Silk Road in Tarim Basin (Xinjiang, China). The aim of our paper is to review them and discuss whether these cities also should be considered as an examples of low density urban complexes.

### **Prehistory and Protohistory of the Tien-Shan Mountains: Excavations at Aigyrzhal 2 in the Naryn Valley, Kyrgyzstan**

**Aida Abdykanova** (American University of Central Asia, Bishkek), **Shogo Kume** (National Research Institute for Cultural Properties, Tokyo), **Giedrė Motuzaitė Matuzevičiūtė** (Vilnius University/Institute of History of Lithuania, Vilnius), **Katsuhiko Ohnuma** (Kokushikan University, Tokyo)

Recent excavations at Aigyrzhal 2 in the Naryn Valley, in the Kyrgyz Tien-Shan, provide evidence for the development of subsistence and mobility in the high altitude zone of Central Asia. The site has produced two distinct phases of occupation: a Mesolithic/Neolithic phase (c. 13650-13100 cal BP) and a Bronze Age phase (c. 3700-3450 cal BP) dated by radiocarbon dating. Discoveries of some of the earliest pottery in central Asia associated with microlithics in the Mesolithic/Neolithic layers suggest that the Neolithization process of the region was analogous to “the East Asian trajectory” that took place in China, the Russian Far East and Japan, and that the process was being developed in Central Asia much earlier than previously thought. On the other hand, the Bronze Age phase is principally composed of Andronovo burials that suddenly appeared some 10,000 years after the possible abandonment of the Mesolithic/Neolithic phase. Although the data so far acquired from the site and surroundings is sparse, ongoing excavations provide new insights into the nature of Neolithization, Andronovization and exploitation of the mountain environments in the region.

### **Steppe Geoglyphs Mark the Ancient Routes of Human Migration Across Central Asia: Introduction to the Research**

**Andrey Logvin** (National University of Kostanay, Kostanay), **Irina Shevnina** (National University of Kostanay, Kostanay), **Giedrė Motuzaitė Matuzevičiūtė** (Vilnius University/Institute of History of Lithuania, Vilnius), **Abai Seitov** (National University of Kostanay, Kostanay)

Geoglyphs in the Torgai region of Northern Kazakhstan were serendipitously found while analysing satellite images from Google Earth. In a past few years over 20 such geoglyphs have been identified in the Torgai region. These unique objects have not been known in the territory of Kazakhstan before, nor in the neighbouring countries. The diameter of those geoglyphs ranges from 90m to 400m. According to the construction type, they could be grouped into two groups: the first type of geoglyphs are constructed from the earth mounds which form lines, rings, crosses, squares and squares with crosses. The second group of geoglyphs is constructed from earth trenches and ramparts. In the past year, the archaeological expedition from the Kostanay University in collaboration with Vilnius University began the investigation of the Torgai geoglyphs. The applied research methodology involved archaeological excavations, GPR work, radiocarbon and OSL dating as well as aerial photography. In this talk we are going to present the recent research results that allowed us to take a closer look at the timing, function and reasoning behind these unique and mysterious constructions.

### **At the Edge of the Black Sands: Rethinking Convention in the Bronze Age “Oases” of Central Asia**

**Steven Markofsky** (Institutió Milà i Fontanals, Barcelona)

The sedentary Bronze Age societies in the Murghab delta in southeastern Turkmenistan have conventionally been described by two overarching concepts, one cultural and one environmental. The first, the Bactria Margiana Archaeological Complex (BMAC), describes a perceived cultural and material uniformity that characterised these societies in southeastern Turkmenistan, northern Afghanistan and southern Uzbekistan. The second, the ‘oasis civilization’, describes the environmental, geomorphological and hydrological dynamics of a society living at the alluvial margin. However, such concepts are decades old and can sometimes constrain the ways in which we understand these societies, particularly in terms of local socio-ecological dynamics and variability that have been overshadowed by large sites and regional uniformity. This paper seeks to reevaluate some of these issues in the context of local-scale data from intensive archaeological survey, remote sensing and geoarchaeological sampling from the northern margin of the Murghab delta. Using these datasets, this paper will explore small-scale relationships and interactions between people, landscapes and water sources. The examination of these dynamics will contribute to a better understanding of local and regional mechanisms that characterized occupation of the desert/delta margin.

## **A Glimpse into the Silk Road: The Newest Archaeological Research and Cultural Heritage Policy Management at the City of Taraz**

**Dmitriy Voyakin** (Archaeological Expertise Scientific Organization, Almaty)

Taraz, in southern Kazakhstan, is one of the most famous cities of Eurasia, which served as a major economic centre on the Great Silk Road since ancient times. In the year 2012 the administration of the Zhambyl region made a very historically important decision to close down the Central Market in Taraz and to begin a large-scale archaeological research at the territory of the city. The project is a part of the program entitled “Revival of historical centres of the Silk Road, preservation and successive development of the cultural legacy of Turkic speaking states and creation of tourist industry infrastructure”. Recent archaeological research has revealed ruins of the oldest madrassas in the territory of Kazakhstan, fortifications that date back to the eighth and ninth centuries, hammam baths, public amenities rich with numerous elements of medieval architecture and décor, and other elements - all testify to the richness of the material accumulated over a short research period of just a few years. This paper is about the means of preserving this historical and cultural heritage site through creation of a complex and multi-faceted archaeological park. At present, both the Republic of Kazakhstan and UNESCO are undertaking measures to ensure protection, preservation and promotion of this historical and cultural heritage site.

## **Filling a Gap in the Prehistory of Central Afghanistan**

**Aleksiejus Luchtanas** (Vilnius University, Vilnius)

The archaeological heritage of the Ghor province in Central Afghanistan is unprotected, poorly recognized and has been devastated by human and natural activity. This is a particularly pressing issue because of the wide spectrum of archaeological heritage sites in the region. The most significant objects in Ghor province are: the multi-period settlement Pumbakar, the sacrifice offering place Qabre Zahak, rock carvings at Qala Malek Antar of the 2nd millennium B.C., and the Buddhist monastery of the first half of the 1st millennium A.D. The Lithuanian archaeological expedition was therefore dedicated to the preservation and registering of the archaeological heritage in Ghor. Eleven archaeological sites discovered in autumn 2007 as well as another nine found in spring 2008 were registered. One of the ongoing aims of the archaeological heritage project is to train local heritage specialists to use modern technologies to register, protect and preserve cultural heritage sites of Afghanistan. During the expedition in Ghor province, damage made to the cultural valuables and possible dangers was assessed.

## **Archaeological Research in Post-Soviet Central Asia: Adjusting Our Focus from Global to Local Datasets**

**Alicia Ventresca Miller** (Christian-Albrechts-Universität zu Kiel, Kiel)

In central Asia, we continue to struggle with models of vast interactions, mobilities, and developments. However, while questions of broad changes can be vital, they overshadow more detailed understandings of social processes at the micro-scale. The aim of this paper is to discuss the current state of research in Central Asia and to highlight the steps necessary for future endeavours to contribute to a strong foundation of data. In particular, the aims of archaeological research should concentrate on undertaking keystone studies of local groups to solidify interpretations of micro and macroregional scales of interaction. A limiting factor in achieving these goals has been the resurgence of regional comparative analyses across the vast steppe aimed at understanding broad changes. As many of these analyses were previously realized by pre-Soviet and Soviet era scholars, their current usage does not move the field of archaeology forward. Therefore, researchers need to readjust their focus to highlight local communities and to contextualize them within broader regional discussions. Only through a strong set of detailed datasets at the community scale can we begin to understand broader social processes occurring in the Central Asia.

## **POSTERS**

### **The Structures of Everyday Life: Trans-Eurasian Exchange of Starchy Crops in Prehistory**

**Xinyi Liu** (University of Cambridge, Cambridge)

Scholarly interest has increasingly focused on an episode of Old World globalization of food resources that significantly predates the ‘Silk Road’. The impetus behind this growth of interest has been the expansion of bio-archaeological research in Central and East Asia over the past decade. This paper considers the agents responsible for the food globalization process in prehistory and the forms they took. One of the key aspects of the Trans-Eurasian movements of crops in prehistory was that the movements were not to regions devoid of existing starch-based agriculture, but instead constituted an addition to that agricultural system. Other economic plants, such as grapes, dates and peas, also moved significant distances. However, the novel starchy crops held a particular significance; they went on to become significant staple foods in many of their new destinations. Drawn from recent discovery from eastern shore of the Central Asia, we will take into consideration differences in the projected archaeological signatures of different potential agents who involved in transmission of the crops.

## **Lithuanian Archaeological-Heritage Mission in Ghor Province, Central Afghanistan**

**Daiva Luchtaniene** (Antiqua, Vilnius)

Ghor province is the most economically underdeveloped region in Central Afghanistan. Despite its rich heritage, archaeological registry here still doesn't exist. Such objects, like minaret of Jam, built in 12th century is a UNESCO World Heritage site. However, neither locals nor foreign professionals conducted significant archaeological exploration in Ghor. Between 2007 and 2012, Lithuania conducted a mission for the conservation of historical heritage. The aim of the program was to find and register archaeological objects, as well as to train local heritage specialists to use modern technologies for registering cultural valuables and for heritage preservation purposes. Our research methods include: the analysis of literature about Ghor, toponymy studies, analysis of satellite images, surveys of local inhabitants and visual observations of the territory. The survey of archaeological objects comprised a small section of 30-60 km radius around the capital. During two expeditions, 20 archaeological monuments were registered, dating from the 4th millennium B.C. to the AD 18<sup>th</sup> c. During the mission, an archaeological registry of monuments in Ghor province was prepared in both Dari and English, including instructions and recommendations for the preservation of monuments in Dari. A seminar for the Department of Culture and Information professionals was also conducted.

## **Pre-Andronovo Burial Mounds of Central Kazakhstan**

**Igor A. Kukushkin** (Karaganda Institute of Archaeology, Karaganda)

Large-scale archaeological researches of Bronze Age burial mounds were conducted at Zhilandy site (Central Kazakhstan). This allowed us to distinguish the range of archaeological objects related to pre-Andronovo cultural, that is similar in content to the monuments of Yamnaya-Afanasevo Cultures. Monuments of this period have their own characteristic features expressed in funeral ceremony practices, burial constructions, grave inventory and ceramics. At the site, funerary constructions are characterized by two concentric fences, constructed from chopped stones. Single burials were laid in stone chest. One skeleton was found in supine position, accompanied by a bronze amulet, earrings and ceramic vessels. Monuments of this type are dated to the last quarter of the third millennium BC. This site revealed previously unknown larger scale traces of Yamnaya population in the middle of the Eurasian steppe. These people are particularly important for understanding the formation of the subsequent Bronze Age societies in the steppe. The beginning of food production, pastoralism, the use of chariots, and population migration are linked with the Yamnaya Culture phenomenon.

## **Sudden Changes in Economy on the Northern Periphery of the Arid Zone of Central Asia: Interaction of Natural and Social Factors**

**Natalia Ryabogina** (Institute of problems development of the North SB RAS, Tyumen), **Oksana Zimina** (Institute of problems development of the North SB RAS, Tyumen)

The focus of the presentation is on climatic and economic change in the northern steppe of Western Siberia during pre-history. The first appearance of stock breeding in this region was associated with aridity and the spread of cattle breeding by the south Andronovo population during the Early Bronze Age. Local short-term agriculture in the Trans-Urals was confirmed on the boundary between the 18th and 17th centuries BC, but crop production ceased during the mid-to Late Bronze Age. Between the Late Bronze and the Early Iron Age nomads with huge herds of animals began to appear in the southern steppes. However, on the northern regions of the steppe, pastoralism faced a crisis, manifested in a temporal preponderance of hunting and fishing. More likely, this crisis resulted in human migration southwards. Populations from the northern steppe moved south, while the northern steppe became populated by fishing-hunting communities from the taiga that moved along the meridional rivers. In this paper a synthesis of climatic and archaeological records will be presented to illustrate the reasoning behind the cultural and economic changes of the populations inhabiting the northern steppe of Western Siberia.

## **Warfare of Ancient Nomads of Tien Shan Region in the Early Iron Age (Saka Period)**

**Sergey Ivanov** (Kyrgyz National University named after Jusup Balasagyn, Bishkek)

From the wide circle of archaeological and historical sources we investigated problems concerning the formation and development of ancient nomads' warfare in the Tien Shan region during the Saka period (VIII-II BC). In the Early Iron Age in the Tien Shan region there existed a strong ethno-political union of local nomads known as Saka tigrhauda in ancient Persian sources. Later data about this union was supported by information from written sources of Greco-Roman tradition. The general results of research deal with the formation, evolution and influence on the development of nomadic warfare in the region. The paper will also focus on the impact of cultural and political factors on these complex processes. The armour and weapons complex is divided into two parts: defensive armour and offensive weapons. The defensive armour was represented by bronze helmets, armour, shields and military set belts. Offensive weapons were represented by various types such as bow, daggers and long cavalry swords, spears and javelins, battle-axes and celt-axes. From the broader historical

and cultural perspective, the warfare of Saka tribes of the Tien Shan region is compared with the military art of sedentary civilizations of other regions of nomadic civilization of Eurasia.

### **Semantics of the Oghuz Jewelry and Pottery of Aral Region (Report Based on Materials of the Ancient Settlement Kesken-Kuyuk-Kala)**

**Irina Movchan** (Archaeological Expertise Scientific Organization, Almaty)

Historical heritage of Oghuz tribes represents a huge interest for science, because during the research-work on this subject there is a possibility to uncover a large number of problems connected with different ethnic processes of Eurasian. The Oghuz problem, as it was designated by the prominent scientist S.G. Agadzhanov, is one of the most considerable. The semantic study of the finds, that were found during excavation of the residential quarter and a sanctuary of the ancient settlement, will allow to take a glimpse to some aspects of material and spiritual culture of the local population of the region. The jewellery and pottery is one of the brightest ethno representative elements of the material culture which is particularly stable and continuing though time.

### **Antelope – Hieroglyphs of Near East and Indus Writing in Private and State Contexts**

**Srinivasan Kalyanaraman**

Two sets of hieroglyphs that frequently occur in Near Eastern and Indus Valley contexts include the ‘antelope’, which represents a variety of even-toed ungulate species, and the “elephant”. The appearance of these hieroglyphs, as well as certain linguistic similarities between the two regions, may suggest a fresh look at and reconsideration of the messages conveyed by thousands of cylinder seals, which depict many animals, including antelopes, goats, rams, scorpions or composite animals with wings. Instead of explaining those signs as an art objects, these hieroglyphs could also be explained as hunting or banquet scenes or the metaphors for the ritual contexts. In this presentation the context of artefacts and inscriptions will be analysed, that were recovered in private property and in State contexts from the Susa (between the Near East and Meluhha).



### **T06S008 - BAYESIAN CHRONOLOGIES FOR THE EUROPEAN NEOLITHIC**

**Organizers:** **Alasdair Whittle** (Cardiff University, Cardiff), **Eszter Bánffy** (Romisch-Germanische Kommission, Frankfurt)

For anyone using radiocarbon dating as the basis for their chronology, informal or visual inspection of results is no longer sufficient, since it will give the wrong answer. Formal modelling in a Bayesian framework is demonstrably the way ahead. The number of Bayesian applications to questions of prehistoric chronology is increasing steadily. This session will concentrate on studies on the European Neolithic. The starting point for the session is a current project funded by the European Research Council, ‘The Times of Their Lives’ ([www.totl.eu](http://www.totl.eu)), led by Alasdair Whittle and Alex Bayliss. Already invited case studies will cover not only site-based chronologies but also modelling of regional and cultural sequences. This will include coverage of new work on the Vinca-Belo Brdo tell, Serbia, the Lengyel settlement and burial aggregation at Alsonyek, Hungary, the mortuary complex at Valencina, Spain, the collective burial monument at Bury, northern France, and others. Other contributions for both papers and posters are invited from other colleagues, in line with the aim of presenting and discussing the range and power of Bayesian applications to European Neolithic chronologies.

### **ORAL PRESENTATIONS**

#### **Introduction: Best Value Sampling Strategies for Archaeological Chronologies**

**Alex Bayliss** (English Heritage, London)

Over the past 20 years Bayesian chronological modelling has allowed archaeologists to interpret their radiocarbon dates within the framework of existing knowledge provided by associated archaeological evidence. Such explicit statistical models are of proven worth in providing more precise dating (Bayliss and Bronk Ramsey 2004), and thus allowing the activities of people in the past to be understood in new ways (e.g. Whittle et al. 2007). Until now the vast majority of published models are site-based (e.g. Bayliss 2009). These models take into account the relatedness of groups of radiocarbon dates from the same site, and can also incorporate powerful prior information about the relative order of dated samples derived from stratigraphy. But archaeologists have a wide range of other types of information about the material remnants of the past at their disposal: location, artefact typologies, the character of sediments, sequence derived from seriation, cultural associations, and many others. This paper discusses the kinds of archaeological information that can be the basis of our chronological models, their relative strengths and weaknesses, and the ability of existing approaches to capitalise fully on their potential. Examples from the ‘Times of Their Lives’ project will illustrate the potential and pitfalls of these different approaches.

## Dating the Vinča-Belo Brdo Tell in the Light of Bayesian Modelling of Radiocarbon Dates

**Miroslav Marić** (Institute for Balkan Studies, Belgrade), **Nenad N. Tasić** (University of Belgrade, Belgrade)

We present the results of recent research at the site of Vinča Belo Brdo. A brief overview of excavation history and chosen field sampling methodology is given. Furthermore, we discuss the implications that preliminary results of new Bayesian  $^{14}\text{C}$  dating will have on our understanding of settled life of the late Neolithic period of the Central Balkans, the time of tell formation in Vinča, its accumulation rate and the occurrence and disappearance of first proto-urban societies of Europe. We also discuss possible household durations during the late Neolithic life on the site. As a part of “The Times of Their Lives” project, between 2012 and 2014 samples for  $^{14}\text{C}$  dating were taken from the late Neolithic site of Vinča-Belo Brdo near Belgrade in Serbia. The site, best known as the eponymous site of the Vinča culture, was first excavated in 1908, and the excavations, with several interruptions, continue to the present day. The Neolithic layers on this multi-layered site, traditionally dated between c.5300 and 46/4500 cal BC, span over 8 metres of settlement remains with at least 7 dwelling horizons confirmed so far. The samples provided originate from all three campaigns of research, those of 1908–1934, 1978–1986 and 1998–2014.

## New Models for the Chronology of the Uivar Tell, Western Romania

**Wolfram Schier** (Freie Universität Berlin, Berlin), **Florin Draşovean** (Muzeul Banatului Timișoara, Timișoara)

The tell settlement of Uivar is located in the Timis district of western Romania. It was excavated by a German-Romanian team led by Wolfram Schier and Florin Draşovean in the period 1999–2009. The site has previously been dated to the Neolithic (late 6th–early 5th millennium cal BC) based on a series of mostly charcoal dates, as well as finds. In terms of relative chronology, the sequence starts with Szakálhát pottery, with Vinča imports or copies, followed by later phases with pottery in Vinča C1 and C2 styles; and finishing with some Tiszapolgár features including burials. The site consists of a core tell occupation formed primarily of burnt houses and several surrounding ditches. In this paper, we shall present the results of two series of dates, accomplished within the TOTL project. A Bayesian model of over 180 dates — both newly acquired and already existing — will form the basis of a discussion about the development of the tell sequence and its relationship to the ditch enclosures and off-tell settlement expansion.

## Neolithic Settlement at Alsónyék-Bátaszék Before the Lengyel Complex

**Krisztián Oross** (Institute of Archaeology, Hungarian Academy of Sciences, Budapest), **Derek Hamilton** (Scottish Universities Environmental Research Centre, East Kilbride)

The Neolithic site at Alsónyék-Bátaszék in southern Hungary became generally known because of the exceptionally large fifth Millennium cal BC settlement and burial ground of the Lengyel culture. However, the area was already inhabited from the earliest stages of the Neolithic, as evidenced by features and burials of the Starčevo culture and numerous house remains of the subsequent Central European Linearbandkeramik culture. Beside the two sixth Millennium cal BC periods of use, ditches and a small burial ground of the Sopot culture were also uncovered. On the basis of the archaeological record, the site appears to provide a complete cross-section for the Neolithic development in south-east Transdanubia. The paper aims to clarify temporal relations between the above mentioned periods of settlement through an analysis of recent radiocarbon measurements within a Bayesian chronological modelling framework. We aim to see how far the results can be synchronised with the traditional relative chronology and with our current knowledge on the cultural development of the region. Finally, we will present a model for the dynamics of human presence on the site before the emergence of the Lengyel culture settlement and to discuss questions of continuity and possible interruptions.

## The Neolithic Site of Alsónyék, S-W Hungary

**Eszter Bánffy** (Romisch-Germanische Kommission, Frankfurt), **Anett Osztás** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest)

This extremely extensive site of the Lengyel culture contains over a hundred houses and two thousand four hundred burials, but geomagnetic investigations estimate it to be four times larger. Due to the size of the proceedings and evaluation, it was obvious that our work group reached out to the chance of three hundred  $^{14}\text{C}$  dates being offered by the PI-s of the ERC program discussed in this session, even completed with about fifty  $^{14}\text{C}$  dates come from the important coeval sites around. It soon became clear, what a demanding job it comes along with using the Bayesian method, beginning with the complicated task of fulfilling all criteria for gaining the right samples, up to coping with the shock by the first results. This short paper intends to give account of the meticulous joint work of modellers and prehistorians, fruitful discussions, doubts, until the real questions, a micro-chronology of a huge site like Alsónyék can be posed. The real challenge is to get the Bayesian results reconciled with the traditional understanding of relative and absolute chronology of the early 5th millennium cal BC of the southern frontiers of Central Europe.



## **Absolute Chronology for the Early to Middle Neolithic Sequence in the Southern Part of the Upper Rhine Valley**

**Anthony Denaire** (Antea-Archeologie/UMR7044-Strasbourg University, Strasbourg), **Philippe Lefranc** (INRAP/UMR7044-Strasbourg University, Strasbourg)

This paper will present results from the component of 'The Times of their Lives' focused on the southern part of the Upper Rhine valley. The initial aim of this was to date precisely the cultures and groups of the regional middle Neolithic. That sequence is relatively well understood, based both on stratigraphic relationships and a series of seriations which have established the succession Hinkelstein, Grossgartach, Roessen, Bischheim, Bruebach-Oberbergen and BORS (the latter two being local 'EpiRoessen' groups). Several big Grossgartach cemeteries and an increase in finds made by contract archaeology in Alsace provide numerous closed contexts which make this ordering possible. Nonetheless, it is clear that the number of assemblages for the beginning of the sequence, essentially for the Hinkelstein group, is inadequate, which has led us to incorporate the early Neolithic *Rubané* (LBK), to combat this deficit, and thus to try to date each stage of the cultural sequence in the southern part of the Upper Rhine valley between c. 5300 and 4000 cal BC.

## **Dating Enclosures of the Late Fifth and the Fourth Millennia cal BC and Their Associated Features**

**Muriel Gandelin** (INRAP, Paris), **Fabrice Pons** (Cardiff University, Cardiff), **Ute Seidel** (INRAP, Paris), **Frances Healy** (Regierungspräsidium Freiburg Landesamt für Denkmalpflege, Freiburg)

This aspect of the TOTL project follows from the *Gathering Time* project (Whittle *et al.* 2011), which dated fourth millennium cal BC enclosures in southern Britain (Whittle *et al.* 2011). It focuses on a Chassey culture enclosure at Château Percin in Midi-Pyrénées and a Michelsberg culture enclosure at Heilbronn-Klingenberg in Baden-Württemberg. Although the French and German enclosures and British enclosures differ in cultural affinities and location, there is much common ground. One shared feature is the destruction of a surrounding rampart by fire soon after its construction. This raises the question of whether these conflagrations marked the end of activity on a site. Cognate to this are questions of the use-life of the enclosures; of whether that use was continuous or intermittent; and of whether the pits and other features inside and outside the enclosures relate to their use or reflect a longer history of occupation. Every enclosure is different, but there is enough similarity to make it possible to approach their dating in similar ways and to weave them into a wider European narrative. Whittle, A., Healy, F. and Bayliss, A. 2011. *Gathering Time: Dating the Early Neolithic Enclosures of Southern Britain and Ireland*. Oxford: Oxbow Books

## **Times of the Dead, Times of the Grave: Individual and Collective Stories during the Late Neolithic in the Paris Basin**

**Laure Salanova** (MAE, Université de Paris Ouest Nanterre, Paris), **Philippe Chambon** (CNRS, UMR 7041-ArScAn-Éthnologie préhistorique, Nanterre)

Excavated recently, the Bury grave (Picardie, France) is archetypal of the large gallery graves from the Paris basin, which were used over several centuries between 3500 and 2100 cal BC. The burial layer provided 300 individuals in a continuous deposit of 30 cm thick. The bones study has allowed reconstructing most of the skeletons and the stratigraphic order of deposits, and the changes in the burial practices. As grave goods are always scarce in this context, it would have been impossible to date these changes without the huge amount of  $^{14}\text{C}$  measurement on the bones themselves. The application of Bayesian statistics has provided two major results. The first one is a discontinuous use of the grave, confirming the cultural gap observed at the end of the 4th millennium cal BC in the region and showing the shortness of its first use. The second one is capital for the meaning of the collective graves. With this chronological precision, the type of *recrutement* (family, village scale or broader social group) can be proved.

## **Estimating the Speed of Change**

**Martin Hinz** (Kiel University, Kiel)

Bayesian statistics represent a quantum leap for an independent temporalisation of archaeological sites and material. But the traditional typochronological approach was amazingly effective in establishing the relative succession of "cultures". To get a complete picture of the temporal development of cultural elements and the character of transitions it is necessary to combine the cultural and absolute chronological vector. The main obstacle for this is the absence both of a metric measurement of cultural change and of a methodology for connecting it to radiometric dates. The 'trapezium' priors of Oxcal represent a step in this direction, and there have been attempts to integrate seriation in the Bayesian framework (Buck/Sahu 2000; Halekoh/Vach 2004). But no general procedure or software solution exists for this. We tried to establish a "Time-Culture-Model" using Nonmetric Multidimensional Scaling (NMDS), the deposition model of Oxcal and also Partial



Canonical Correspondence Analysis (pcCA). We use a quasi-metric measurement of similarities and ordination methods to achieve a cultural vector and connect this with absolute radiometric dates. It enables us to estimate the dates for undated assemblages using the tempocultural model and using the (nonlinear) model itself for evaluating the speed of change. Case studies of Neolithic ceramics from the Tiefstich group of North-Central Germany will be given.

### **The Contribution of Bayesian Modelling to the Understanding of the Temporality of Southern Iberian Copper Age Societies: The Settlement of Valencina De La Concepción (Sevilla, Spain)**

**Marta Díaz-Guardamino** (Research Group ATLAS-University of Sevilla), **Leonardo García Sanjuán** (Research Group ATLAS-University of Sevilla), **David Wheatley** (University of Southampton, Southampton), **Derek Hamilton** (University of Cardiff, Cardiff)

In addition to being the largest known Chalcolithic settlement in the Iberian Peninsula, Valencina de la Concepción is probably the Spanish prehistoric site with the highest number of archaeological excavations. Still, there are fundamental issues that undermine any attempt to interpret Valencina in broad social and cultural terms. This is particularly true regarding the temporality of the social practices that gave way to its formation as an archaeological site that includes thousands of negative structures, some remarkable megalithic monuments and a substantial diversity of imported objects. This paper presents and discusses the results of on-going <sup>14</sup>C AMS dating and Bayesian modelling undertaken as part of the ERC-funded research project 'Times Of Their Lives', in collaboration with local partners, at Valencina. Bayesian modelling of radiocarbon-dated bone samples from funerary deposits of various structures located across the site is providing often high-resolution models spanning just a few generations. Among others, these models illustrate the short-term funerary use of some of these structures, while providing empirical data to assess the temporality of the use of the site and contemporaneity of individual monuments, thereby shedding new light of the social practices involved.

### **Finding the Woods in Neolithic Britain?**

**Peter Marshall** (English Heritage, London)

The Neolithic in Britain is commonly viewed as the start of a long process of human-driven land cover change that continued up until the present day. Pollen analytical reconstructions have tended to see forest clearance, the introduction of new cultigens, and monument building as cultural order being imposed on the environment. Pollen analysis has traditionally drawn on data collection and the construction of narratives about that data with few attempts made at hypothesis testing. The Multiple Scenario Approach (MSA) offers a radically different way of utilising pollen data which involves production of a large number of hypothetical landscapes and comparing them statistically with a pollen signal to determine ecologically 'realistic' reconstructions. Using MSA case studies that produce vegetation reconstruction in the form of maps we will illustrate the advantages MSA has over traditional representations of data from pollen analysis. Producing multiple reconstructions at different points in time from well-dated pollen diagrams, it is possible to generate a reconstruction of probable landscape dynamics from multiple pollen sampling sites. Ultimately giving insight into the spatial aspects of vegetation being reconstructed as well as its composition, this approach will allow narratives about people and their environment in terms of a medium of social engagement.

### **Narratives for the European Neolithic**

**Alasdair Whittle** (Cardiff University, Cardiff)

This paper concludes the session on Bayesian chronologies. First, I briefly review how much the very valuable and long-standing European research interest in Neolithic chronologies has achieved. How robust are the results? Secondly, I give a brief overview of progress so far of the 'Times of Their Lives' project (started May 2012). Finally, I consider why all this effort at greater precision matters. I look at kinds of narrative, drawing on diverse sources including Hayden White and Ricoeur, and I consider how in practice we can actually achieve what a lot of people talk about but leave rather vague: the challenge of working at and combining different timescales.

## **POSTER PRESENTATIONS**

### **Animal Husbandry in the Late Neolithic (Lengyel Culture) and the Bayesian Chronology**

**Eva Nyerges** (Institute of Archaeology, Hungarian Academy of Sciences, Budapest)

How did the people of the Lengyel culture keep their animals, and how could the Bayesian chronology help in its reconstruction? A case study from the late Neolithic settlement of Alsónyék, south-western Hungary.

### **Absolute Chronology for the Northernmost Settlement of the Vinča Culture. Case Study from Szederkény-Kukorica-dűlő (SE Transdanubia, Hungary)**

**János Jakucs** (Institute of Archaeology, Hungarian Academy of Sciences, Budapest), **Peter Marshall** (English Heritage, Sheffield)

The site of Szederkény-Kukorica-dűlő was discovered in 2005 in advance of construction of the M6 motorway in SE-Transdanubia (Baranya County, south Hungary). The site is located 40 km north of the Drava river, on a loess ridge above the Karasica stream which flows into the Danube. Material culture, from Szederkény has clear affinities with the northern Balkans, showing strong resemblances to the early Vinča culture assemblages of central Serbia, the Srem and the Banat region. Although the material cultural remains can be clearly attributed to the Vinča culture, the settlement layout and the architecture are more typical of central European LBK settlements. Although some elements of the layout of postholes were poorly preserved, houses could be confidently identified from the elongated pits flanking them. In order to gain a better understanding of the chronology of the site and its wider context, radiocarbon samples from burials and features associated with houses have been dated as part of the Times of Their Lives project.

### **Deconstructing Archaeological Cultures, Reconstructing Settlement Dynamics: Boom and Bust at the Turn of the 4th and 3rd millennia cal BC**

**Marko Sraka** (Ljubljana University, Ljubljana)

We problematize two aspects of how radiocarbon calendar chronologies for the Neolithic and Eneolithic periods in Slovenia are established. The first is methodological — informal or visual inspection of radiocarbon dating results, which often gives wrong answers to questions of when something happened and how long it lasted. The second is conceptual — prehistoric time understood as a sequence of temporally exclusive and internally homogenous blocks (cultures), by which changes in e.g. material culture and settlement patterns can only be observed at the transitions between blocks. Radiocarbon dates and “culture-historical” premises are combined in a way that the cultural sequences are replicated within a calendric time framework. We use Bayesian modelling as an exploratory approach to develop site-based and regional calendar chronologies for Northeastern Slovenia in the late 5th and early 4th millennium BC (Lasinja and Retz Gajary cultures). We integrate radiocarbon data with archaeological information in different ways and use sensitivity analyses to provide some alternative interpretation of the settlement dynamics in the region. Our results suggest a relatively intensive and short-lived period of settlement occupation ca. 4300 cal BC across the region, followed by a possibly centuries long gap after which same locations are occupied again.

### **New Results, Interpretations and Perspectives on Collective Graves in France and Great-Britain within a Bayesian Framework (4500–2500 BC)**

**Christophe Sévin-Allouet** (UMR CNRS 8215 *Trajectoires*, Paris)

The recent studies of two British archaeologists and their team on five collective-use monuments from the south of England, based on Bayesian statistical models, have contradicted some deep-rooted received ideas about very long use-durations of those graves, just as well in Great Britain as in France. Relying in my turn on this statistical method of Bayesian inference, I have studied the use sequences of ten other funeral monuments located both in France and in Great-Britain (Sévin-Allouet 2013); some of these are thus presented here. The results obtained have also allowed a significant advance in the comprehension of those graves, thus putting in the forefront complex use forms in time where very short durations uses alternating with long period of abandonment. To finish, the chronology of these monuments in their regional context is reconsidered, highlighting gaps in our data and prospects for future researches not only in France and Great Britain, but also in other countries.



### **T06S009 - ALONG THE NORTHERN MESOPOTAMIAN FRONTIER. THE UPPER TIGRIS AND ITS SURROUNDING REGIONS DURING THE EARLY BRONZE AGE (3100-2000 BCE) (Round Table Session)**

**Organizers: Tuba Ökse** (Kocaeli University, Kocaeli), **Nicola Laneri** (University of Catania, Catania)

For northern Mesopotamia, the third millennium BCE represents a period of great transformation characterized by phenomena of increasing social complexity. In particular, archaeologists have encountered a transformation of settlement patterns in this region with the presence of small-to-medium sized centers during the first half of the millennium and an increasing presence of urban environments during its second half. In particular, it is during the Akkadian period that the whole northern frontier is characterized by a process of territorial conquests enacted by the Akkadian kings, as is demonstrated by the presence of archaeological correlates linked to such imperial endeavors found scattered in the region. Within this landscape, the relationship between Mesopotamia proper (i.e., northern Syria and Iraq) and its northern frontier (i.e., southeast Turkey) has never been thoroughly investigated. Thus, this roundtable aims at investigating the relationships

between the different groups inhabiting the northern Mesopotamian frontier with a particular focus on confronting the data emerging from the recent excavations enacted along the upper Tigris regions with the Mesopotamian chronological framework recently established by the ARCANE work group.

## ORAL PRESENTATIONS

### **The Early Bronze Age in the Upper Tigris Region. A View from Hirbemerdon Tepe**

**Nicola Laneri** (University of Catania, Catania)

During these years of excavation at Hirbemerdon Tepe, archaeologists have tried, using both absolute calibrated and relative comparative chronologies, to determine a coherent chronology for the third millennium BC. This exercise is of particular interest due also to the recent chronology established by the Arcane work group for the third millennium BCE in the Near East. Thus, at this roundtable I will use the data available from Hirbemerdon Tepe in order to establish a more coherent chronology at the site and, hopefully, in relation to the whole region of the upper Tigris valley and the surrounding areas.

### **Contribution of the Stratigraphical Sequence of Salat Tepe to the Bronze Age Chronology of the Upper Tigris Region**

**Tuba Ökse** (Kocaeli University, Kocaeli)

Recent excavations at Salat Tepe brought out a dense occupation dating from the Halaf-Ubaid transition onwards. The pottery assemblages of the EBA I-II consist of a typical chaff tempered hand made local late Chalcolithic Ware and fine wheel made vessels of the proto-Ninevite-V, painted Ninevite-V and incised Ninevite-V wares, dating to the earlier two centuries of the 3rd Millennium BC. Hereafter the mound was abandoned and resettled in the 22nd century BC. According to radio-carbon dates, Level 5 was inhabited in 2150-2050 BC. The EBA IV assemblages are composed of PSW, RBBW, DROB and the Jezirah Grey Ware. The presence of the RBWW indicates continuity to the MBA. During the earlier two centuries of the 2nd millennium BC, the hilltop was enlarged by mud fills and the former buildings were rebuilt. The pottery contains the Habur Ware, RBWW, coarse DROB and a few metallic ware shards. The later settlement was levelled towards the end of the 18th century BC, and a building complex was constructed on the hilltop that suffered an earthquake towards the middle of the 16th century BC.

### **EBA Pottery Sequence from Salat Tepe. First Impressions**

**Deniz Yasin Meier** (University of Bern, Bern)

Since 2011 the EBA sequences at Salat Tepe are under the focus of research. Pottery collections had been documented in a greater number which allows a first more detailed presentation of this material as itself and in comparison to examples from the neighbouring archaeological sites.

### **Continuity and Discontinuity: Funerary Traditions in Jezirah and the Upper Tigris Valley during the 3rd Millennium BC**

**Stefano Valentini** (Center for Ancient Mediterranean and Near Eastern Studies, Florence)

Analyzing the funerary traditions in Jezirah (north-east Syria) and the Upper Tigris valley (south-east Turkey) during the 3rd millennium BC, elements of continuity and discontinuity emerge. The aim of this paper is to describe the different types of burial (pit-, cist-, chamber, shaft-, intra moenia / extra moenia, intra mural / extramuros) by verifying the presence of a possible relationship between the evolution of burial customs and the chronological framework recently established by the ARCANE Project.

### **The Contribution of Kavuşan Höyük to the Picture of Early Bronze Age in the Upper Tigris Region**

**Gülriş Kozbe** (Mardin Museum, Mardin)

Even though our knowledge on the Upper Tigris has been getting more detailed, following the various archaeological excavations, surveys, off-site analyses and sampling carried out in Ilisu Dam area since 1998; the information involving EBA of the region is still fragmentary. However the earliest settlement (Kavuşan IX) dating to the last quarter of the 3rd millennium BC, recovered at Kavuşan Höyük located on the immediate east of the Tigris' tributary, Şeyhan and 10 km south-east of the modern town of Bismil is supplying some data for the missing parts of the picture of this period. There is an increased number of Cooking Pots with or without triangular lugs, well known from the upper levels dating to the first half of the 2nd millennium BC at Kavuşan. Besides Cooking Pot Ware, the ubiquitous presence of Red Brown Wash Ware (RBWW) which is regionally distinctive and will be a constant marker of the early second millennium in the region starts in the level of Kavuşan IX. The abundance of RBWW may reflect a dependence on an organization for resource obtainment and management practices in mass pottery production in the manner of "societal complexity".

## **Ceramics and Chronologies of the “Northern Frontier”: An Open Debate**

**Valentina Orsi** (University of Florence, Florence)

This paper addresses chronological and cultural aspects of ceramic production in late 3rd millennium BC northern Jezirah, comparing and contrasting pottery assemblages from the Upper Khabur and Upper Tigris region. Although valuable sets of stratified materials allow us to follow a precise evolutionary trend in Early Bronze Age Upper Mesopotamian ceramic production, chiefly delineated by the ARCANE work group, important questions still demand a further documentation. In particular, the impact of Akkadian imperialism on the local material culture, as well as the effects of Akkadian withdrawals from the north, remains matter of debate. Ceramic evidence emerging from the recent excavations carried out along the upper Tigris regions reveals specific morphological parallels, as well as more general similarities with contemporary ceramics from the Upper Khabur, clearly indicating a cultural trajectory linking the territories north of the Tur Abdin, and the low lands, to the south. The paper will focus on the correlation between cultural changes and regional patterning in pottery manufacture, in order to explore dynamics of long- and short-distance interactions, movement of people and materials, and the variety of cross-cultural interconnections.

## **The Frankfurt University’s Southeast Anatolia Project (SOAP): Retracing Pots and People**

**Christian Falb** (Institute for Archaeological Sciences. Archaeology and Cultural History of the Near East Goethe-University Frankfurt am Main, Frankfurt)

The Southeastern Anatolia Project (SOAP) of Goethe University at Frankfurt a. M. has been carried out since 2009 in order to investigate traditions of settlements and settlement systems, and of the material culture in some areas between the Taurus mountains in Southeast Anatolia and the Jebel Abd al-Aziz in Northern Syria which in the later third millennium in some respects might have formed a certain cultural unity. The most prominent common EBA features of this region are circular settlements, which in Northern Syria may be of a considerable size and heavily fortified (“Kranzhügel”), and two characteristic ceramic wares: Northmesopotamian Metallic Ware and Combed Wash Ware. Therefore the means of research chosen in the project comprised archaeological surveys, topographic studies of settlements, and archaeological as well as chemical and petrographic material analyses of pottery and clay samples as reference material from Southeast Anatolia in comparison with data from Northern Syria. The focus was set on Northmesopotamian Metallic Ware as a major and very frequent chronological and cultural indicator. The lecture features some of the results of the project which have yielded new evidence about the origin, the cultural traditions, and the distribution of the bearers of Metallic Ware.

## **Bash Tapa (Iraq) and Its Environment. Third Millennium Pottery from the Two First Excavation Campaigns**

**Juliette Mas** (Université de Liège, Liège)

Bash Tapa is a circa 8 ha settlement, located 35 km South of Erbil, in Iraqi Kurdistan. Its exploration was began in September 2013 by a french archaeological mission, led by L. Marti (Collège de France, Paris). The stratigraphical step trench excavated on the southern slope of the tell revealed six phases of occupation dating to the 3rd millennium BC, from the Ninevite 5 to the Early Dynastic III periods (ARCANE ETG 1 – 5). A first evaluation of the pottery material recovered in this operation revealed that there are different traditions represented at the site. In fact, while the material dated from the beginning of the Early Bronze Age is clearly related to the Northern tradition, the most recent 3rd millennium levels identified so far have provided us with pottery which could be connected to Central Mesopotamia, and more specifically to the Diyala region. This paper will give a first overview of 3rd millennium pottery from the two first campaigns of excavation at Bash Tapa, its links with the other regions of Near East and its significance for chronology.

## **Tracing the Clay Source of the North-Mesopotamian Metallic Ware from Southeast Anatolia (SOAP Project): An Application of Major, Trace Element and SR Isotope Geochemistry**

**Mustafa Kibaroglu** (Institute for Pre- and Protohistory and Medieval Archaeology, Eberhard-Karls University of Tübingen, Tübingen)

It will be reported the results of major, trace element and  $87\text{Sr}/86\text{Sr}$  isotope analyses carried out on the North-Mesopotamian Metallic Ware and local clay samples from Southeast Anatolia, Northeast Syria and the Pütürge Massif (Southeast Malatya), collected in the framework of the Southeast Anatolia Project (SOAP) of the Goethe University of Frankfurt/M. The major and trace element composition obtained by X-ray fluorescence and ICP-MS were applied to trace the provenance of the raw clay source of the non-calcareous chemical group of the North-Mesopotamian Metallic Ware, which is a characteristic major feature of the population groups settling in Southeast Anatolia and Northeast Syria in the 3rd millennium B.C. Major and trace element composition of the ware show that the parent rock of the raw clay for the non-calcareous group of the Metallic Ware was derived from bad rocks such as schist/slate or similar rocks with felsic chemical

affinity. Accordingly it is suggested that the similar metamorphic rocks exposed in the Pütürge Massif area, southeast of Malatya, most probably the source area of the non-calcareous clay of the Metallic Ware. The  $87\text{Sr}/86\text{Sr}$  isotope analysis attests this suggestion, showing unique isotopic signal, very close to the clays from the Pütürge Massif area.

### **Early Bronze Continuity and Disruption in the Turkish Middle Euphrates during the EB I-II: The Tilbes Project-Birecik Case**

**Jesus Gil Fuensanta** (Universidad Autónoma de Madrid, Madrid), **Alfredo Mederos Martín** (Universidad Autónoma de Madrid, Madrid)

The IV Millennium BC is a crucial period in the History of the Near East. During this period, Late Chalcolithic (LC) for Northern Mesopotamia and the beginning of the Early Bronze (EB) Age, took place the Uruk expansion across the region. A few Interpretations for this Uruk expansion have been suggested before. At the end of the Millennium (EB I) certain changes happened in most areas of the region with traces of the Uruk culture. There some sites show a hiatus in the cultural sequence, but no in certain areas of the Middle Euphrates (such as the Birecik area, in Sanliurfa province, southeastern Turkey), our focus for this study. But the end of EB I period new changes took place in this region with the presumed introduction of new cultural characters for this region. The sites of Tilbes Hoyuk or Surtepe in the Birecik area yielded broad exposures about levels and architecture of this period plus the early centuries of Third Millennium. Here is proposed a few interpretations about the local archaeological events fitting into the global Ancient Near East Historical frame.

### **Başur Höyük Excavations**

**Haluk Sağlamtimur** (Ege University, Izmir)

Başur Höyük is located on the Başur Stream flowing from the Bitlis Valley to the Bothan River. The mound is at Aktaş Village, ca. 20 km to the city of Siirt. The mound is 250-x150 m in dimensions and the cultural deposit reaches almost 15 m. The site had been inhabited from the Ubaid Period (Level 5) onwards in the Late Uruk Period (Level 4), the Early Bronze Age (Level 3), the Middle and Late Bronze Ages (Level 2) and in the Middle Age (Level 1). During the 2011 and 2013 excavations 14 Early Bronze Age graves – nine stone cists and five simple pit burials – were found at the south-eastern part of the mound. Nine of them are stone-cists and five are simple pit burials. The stylistic characteristics of the pottery and the seals found in the graves are dated to the beginning of Early Bronze Age (ca. 3000-2900 BC). The graves are supposed to have belonged to so-called local elites, according to their rich goods. The grave goods consist of metal artefacts with different attributes, pottery with Ninive-5 influences and seals with Jemdetnasr characteristics, indicating a high level of technological advancement and close relationships with other cultures around the region.

## **POSTERS**

### **Chemical and Mineralogical Analysis of the Dark Rimmed Orange Bowls Ware (DROB) from Northeast Syria and Southeast Anatolia: Results and Archaeometric Implications**

**Mustafa Kibaroglu** (Institute for Pre- and Protohistory and Medieval Archaeology, Eberhard-Karls University of Tübingen, Tübingen)

The Dark Rimmed Orange Bowl Ware (DROB-Ware) is an easily recognizable Early Bronze Age fine pottery, unearthed in numerous archaeological sites in Northeast Syria and in the Upper Tigris Valley of Southeast Anatolia. A total of 36 sherds from several sites in Northeast Syria and Southeast Anatolia were analysed using X-ray fluorescence spectroscopy, petrographic thin section and powder diffraction methods. These methods were combined with a view to ascertaining the elemental and fabric characteristics, source of raw clays used for their production and the production technique. To determine possible clay source of the ware, a large number of local clay samples from main distribution area of the DROB-ware were also analyzed using the same methods. The analyses reveal a production of the selected samples in the Upper Tigris and show that for the manufacture of the vessels multiple clay sources were used.

### **Başur Höyük Excavation- EBA Graves**

**Haluk Sağlamtimur** (Ege University, Izmir)

Başur Höyük is located on the Başur Stream flowing from the Bitlis Valley to the Bothan River. The mound is at Aktaş Village, ca. 20 km to the city of Siirt. The mound is 250-x150 m in dimensions and the cultural deposit reaches almost 15 m. The site had been inhabited from the Ubaid Period to Middle Ages. During the 2011 and 2013 excavations 14 Early Bronze Age graves – nine stone cists and five simple pit burials – were found at the south-eastern part of the mound. The grave goods range from painted and unpainted pottery, bronze spearhead, various ritual artefacts, and seals with geometric motifs to beads made of mountain crystal and other types of stones which are numbered in tens of thousands. The stylistic characteristics of the pottery and the seals found in the graves indicated that the graves should be dated to the beginning



of Early Bronze Age, approximately 3000-2900 B.C. These graves which we have interpreted as belonging to this so called local elites contained metal artefacts with different attributes, ceramic finds with Ninive 5 influence and seals with Jemdet Nasr characteristics which indicate the level of technological advancement and that they were in close relationship with their surrounding cultural regions.



## **T06S010 - MEASURE, NUMBER AND CULTURE**

**Organizers:** **Aleksander Dzbyński** (University of Zurich, Abteilung Ur- und Frühgeschichte, Zurich), **Tomasz Gralak** (Wrocław University, Institute of Archaeology, Wrocław)

Metrological issues are present in archaeology already for several decades. It is still, however, a new subject which requires intellectual reflection. First of all, a key matter is the ability to identify measurement units through artefacts, which is a matter of appropriate methods of analysis. But what we want to discuss within the session in general is the role of mathematics and metrology in the development of human culture. Therefore we are going to deal with such themes as development of counting, weighing and varied manners of measuring and division of space. These questions form an important part of the cognitive archaeology, whereas the main problem concerns the conceptualization of numbers, measurement, and thus the emergence of specialized abstract thinking skills. We can surely ask when, how and why it happened. Next problem is to what degree weighing and measuring becomes a way of the world description, and how strong is their impact on the whole culture. It seems that these issues were crucial to layout buildings and settlements, but also to decoration patterns, for example on pottery. This applies also to the emergence of concepts of borders and division of economically exploited areas. For pre-industrial societies it determines access to the basic means of production - the arable land. Manners of space division strongly influence social and political structure. The development of metallurgy also required a reflection on properties of metal and eventually led to the creating of weight systems crossing the borders of local communities. The same problem as well as the development of counting skills was also associated with the beginnings of trade and commerce. In this way we would like to deal with a matter essential to all communities - the development of communication processes. Furthermore, it appears that gradual expansion of the mathematical and metrological knowledge strongly influenced ideological transformations of traditional societies. It is perceptible in plastic arts, but also in music and literature. The subject of the session is indeed very wide - it concerns all periods and regions of the world.

## **ORAL PRESENTATIONS**

### **Numbers and Time: A Cross-Cultural Investigation of the Origin and Use of Numbers as a Cognitive Technology**

**Karenleigh A. Overmann** (University of Oxford, Oxford)

Number concepts originate in the innate sense of quantity known as numerosity and develop into explicit concepts through the interaction of the body with material artifacts that facilitate tactile and discrete representations of quantity. Once numbers are available, they enable 'time' to be conceptualized as a quantifiable substance, displacing previous methods of timekeeping based on estimating relations among natural environmental features. Behavioral data for 50 globally dispersed societies were compared on highest number counted and timekeeping beliefs and behaviors. The availability and use of numbers as a cognitive technology structured conceptions of 'time' in quantified ways, measured through outcomes such as the increased use of material devices for counting time, division of time into finer gradations, counting of human age, and structuring of time into epochs, as well as the decreased use of estimation techniques for timekeeping. However, the availability of numbers did not change the prevalence of finger-counting or astronomical myths, association of menstrual and lunar cycles, or use of seasonal variation for timekeeping. The cultural nexus in which quantification and timekeeping develop (i.e., context, value, and artifacts) has implications for interpreting prehistoric artifacts, as well as the possible complexity of the associated culture and availability of numbers in language.

### **The Third Dimension of the Blade: Social and Communicative Functions of Macrolithic Flint Blades in Central and Eastern Europe**

**Aleksander Dzbyński** (University of Zurich, Abteilung Ur- und Frühgeschichte, Zurich)

The first macrolithic blades were produced in the area of today's Greece around 7000 BC. According to researchers, however, it was quite an odd innovation which remained a local phenomenon. The most intriguing macrolithic blades appear again in the environment of Chalkolithic societies of South-east Europe, where we are first confronted with the phenomenon of accumulating large amounts of metal. According to the analyses performed so far by researchers, the dimension of a blade was important. The aim of this paper is to show macrolithic industries in a broader historical perspective. Macrolithic blades and metallurgy are therefore perceived as two sides of the same coin, which is, in general, the rationalization



process, in the course of which the measure/number became the basic landmark in the social communication. Moreover, a dialectical method can be applied into this development. Why not?

### **Ratio in Prehistoric Architecture**

**Mert Bertan Avcı** (Istanbul University, Department of Archaeology, Istanbul)

Human uses not only physical raw materials, also mental resources when he produces something. If mental resources are to be systematically analyzed, the design of the product is the first step. The frame of the product is to be formed by using the information which is either transferred or trial. The flexibility, durability and applicability of the raw material are the most substantial elements that give the design its basic frame, and restrict the producer. As regards to measurement, applicability is as important as the need and supply. This presentation is to be analyzed in accordance with need and design, however, raw material and applicability will be examined as regards to design. These are considered as the identifiers of measurement systems in prehistoric times. In this presentation, we will mention the diameter of a wattle-and-daub shed, or the weight of a mudbrick as examples while we talk about the units which raw material can be turned into and which have been standardized through time. We will discuss these data in the framework of the potentiality raw material presents, and the limits of applicability. While most of the archaeological data comes from the Neolithic and Chalcolithic villages of Anatolia, we will naturally use ethnographic examples, too.

### **Detecting Metrological Patterns in Archaeological Data: Kendall's Quantum Modelling, Measurement Units and Proportional Designs**

**Jari Pakkanen** (Finnish Institute at Athens, Athens)

Can statistically significant patterns be detected in Late-Bronze-Age Aegean balance weights made of lead? How should we approach the question of what type of a design system the Classical Greek architects used for temples? Is it possible to say whether one of the several modern interpretations is more likely than another? Lead is not an ideal material for balance weights: as a soft material it easily loses some of its mass and it oxidizes quickly. Despite this most Late-Bronze-Age weights were manufactured of lead: it was cheap, dense and easy to shape. Analyses of buildings show that arithmetical proportions can with reasonable precision be fitted to architectural measurements, but there is far less consensus among scholars about the possibly used metrological units and whether the fifth-century Doric design system can be classified as being based on a fixed-size module. Modern measurements are the main source material for studying the questions posed at the beginning: however, these measurements can be quite far removed from the initial mass of a balance weight or any original architectural design. I will demonstrate that computer-intensive statistics can help to find answers. The considered methods are based on Kendall's quantum modelling and Monte Carlo computer simulations.

### **Numbers and Letters as Tools of Production Processes in Iron Age: The Case of the Weight Looms in Ancient Lessinia (Northern Italy)**

**Simona Marchesini** (Alteritas, University of Padua, Padua), **Mara Migliavacca** (Alteritas, University of Padua, Padua)

The domain of number as a brain tool is very complex, as the anthropology and cognitive science have outlined in the last decades. Every human being has the innate capacity to count and to manage computational activity. At the same time we know that not all civilizations have developed a number system. Cultural and historical motivations can activate and keep alive the capability to count in a society. In the Iron Age of the Italian Peninsula almost all the civilizations have developed a proper counting/number system, partly inherited – together with the alphabet – from the Greeks, partly autonomously developed. We have observed an advanced sign system connected with a class of objects referred to the textile production in Northern Italy during the second Iron Age (V-I Century B.C.). In the Lessinia Mountains, to the north of Verona, we could analyse 80 stone loom weights (from 1 to 2 kg heavy) presenting a varied repertoire of inscribed signs. It was possible to recognize a group of base signs, partly alphabetic, partly naturalistic or symbolic, varied by small diacritical marks. Authors argue that a similar sign system can represent the trace of quantitative/qualitative inputs connected with the production, not only of textile, but also of other classes of artefacts.

### **News about Greek Vase Used to Transport and Conserve Honey**

**Rui Morais** (Oporto University Faculty of Letters Classical Archaeology, Oporto)

Honey, with its different traits and uses, was a commercialized good, on par with other important foodstuffs. The first evidence of containers to transport honey date to the Bronze Age, as is recorded on Egyptian frescos of the fifteenth dynasty (middle of the second millennium BC) and on some Mycenaean Linear B tablets (second half of the 2nd millennium BC). Other types of containers used to transport honey are referenced in papyrus of the Ptolemaic era (Bortolin, 2008, 119-122). The containers recovered by archaeology are of Roman and Byzantine time. Identifying them is possible due to the inscriptions (sgraffito and tituli picti), mostly present on amphorae forms used to transport wine.

## Modular Space in Roman Period European Barbaricum

**Tomasz Gralak** (Wrocław University, Institute of Archaeology, Wrocław)

Analysing buildings from the Roman period from Central Europe it was found that a repeating length measurement unit, which was approximately 0.715 m, was applied. It was also found that their layout was composed of repeating modules: a rectangle 3:4 units and a square 3:3 units. Similar principles were followed in composing pottery decoration consisting of repeating rectangular motifs. Repeating elements were also used in production of everyday objects, i.e. brooches, pins etc. The basic paradigm of the style was therefore the principle that the whole is built of repeating elements. This belief also influenced interpersonal relations. The Celtic fields, known from northern Europe were divided in equal parts. Therefore, the principle of modular divisions defined the access to the basic means of production - the arable land. The structure of settlement was modular as well. Territories of individual communities (probably tribes) were compact areas separated from each other by uninhabited zones. The political structure of the Przeworsk culture population - the Lugian Federation (Lugiorum Nomen) - also results from such a perception of reality. According to Tacitus, this organization consisted of several different tribes, thus again the whole is built of individual elements.

## Archaeotopography – A Sub-Discipline of Archaeology

**Alexandru Morintz** (Institute of Archaeology “Vasile Parvan”, Bucharest)

The present paper has its roots in a previous communication referring to a possible topographical function of a decorated hearth discovered in Romania. The week reaction of the colleagues (in favor of or against it) in front of an absolutely new hypothesis made us realize that many archaeologists have a vague image about the topographical methods and instruments used in the periods they study. Topography is a mathematical application attested more than four millennia ago. Nonetheless, although written data and remains of engineering works attest the making of complex topographical works, the discoveries of instruments are only a few. The most important cause for this situation is the difficulty to interpret properly such archaeological discoveries. A proper interpretation of such artifacts or features, most of the time discovered in fragmentary state or incomplete, cannot be achieved without using a sub-archaeological discipline, *archaeotopography*. This paper proposes the reconstitution of the stages of archaeotopography through the reconstitution of some topographical techniques in correlation with the mathematical achievements of that time. These reconstitutions are a useful instrument in the (re)interpretation of some archaeological contexts. At the same time, we will present several archaeological contexts with possible topographical connotations.

## The Topographer in Antiquity: Education, Profession, Guild, Social Status

**Alexandru Morintz** (Institute of Archaeology “Vasile Parvan”, Bucharest)

The paper will embark on the beginnings of topography through an analysis of their practitioners. Aspects referring to education, profession, guild and social status will be approached. Although the clear existence of specialized topographical education dates back only from the Roman period, mathematical notions were previously taught in the schools of Babylon and Egypt. According to Diodorus Siculus, the Egyptians paid attention to the instruction in the field of land measurements. It is possible that in Mesopotamia existed even teachers of topography. About topographers organized in guilds we can speak only starting with Ancient Greece and Rome. We will discuss some hypothesis about the existence of this profession in Ancient Egypt. The social status of those that dealt with topographical measurements knew dramatic changes in time. In Antiquity, the connection between topography and astronomy, astrology or architecture granted its practitioners a high status. In the Middle Ages, this field became essential for “the complete gentleman”, imagined by H. Peacham as combining the attributes of a land owner and an army man. Starting with the Modern Age, the social status suffers a decline, the job being undertaken by man of modest condition.

## Application of GIS – Based Statistical Methods for Analysis of Settlement Patterns during the Pre-Roman Iron Age in Middle Oder Basin

**Michał Kasiński** (Institute of Archaeology, Jagiellonian University, Cracow)

Middle Europe during the last four centuries BC was a field of tempestuous changes on archaeological cultural map. They were predominantly caused by dissemination of new cultural model developed within western zone of Hallstatt culture. It comprised a relevant impulse for changes that occurred in the interfluvium of Oder and Vistula rivers, where at the turn of 2. and 3. century BC new archaeological groups - Przeworsk and Oksywie cultures – were formed. The region of Middle Oder Basin plays significant role in understanding cultural phenomena taking place in Polish lowlands. During studied period it was inhabited by two separate cultural groups - representing Jastorf and Przeworsk culture, that despite close vicinity have preserved their own traditions, that are reflected i.a. by strictly respected different burial rites. Modern statistical and GIS

tools make it possible to analyze greater amount of data collected i.a. during fieldwalking survey, excavations and archival references. The aim of the presented studies is use of this methods in reconstruction of settlement patterns existing in studied area in pre-Roman Iron Age and definition of possible differences and similarities between. Important issue is also assessment of usefulness of presented methods in reconstruction of archaeological phenomena.

### **Use of Non-Invasive Methods in Microregional Studies of Pre-Roman and Roman Age Sites in Michałowice Region, Świętokrzyskie Voivodeship, Poland**

**Jan Bulas** (Institute of Archaeology, Jagiellonian University, Cracow), **Michał Kasiński** (Institute of Archaeology, Jagiellonian University, Cracow)

Microregional studies in the area of Michałowice were initiated in order to find sites inhabited by the people who were using necropolis of the Przeworsk culture excavated since 2008. The main objectives of the study was an attempt to reconstruct the settlement pattern associated with the population living in the microregion in the time of pre-roman, roman influence and the early phase of migration periods – the time when necropolis in Michałowice site 1 was used. In the researches series of non-invasive field survey methods were used including: geophysical methods, survey with metal detector, aerial photography, field walking. Effects of the field works were analyzed with use of GIS. Essential were mapping and planigraphy methods revealing fluctuation of settlement pattern and some relations between different sites in Iron Age. Cooperation with geologists helped understand post-depositional processes, and changes in the archaeological landscape of the studied area. The aim of the presentation is to illustrate effects of the interdisciplinary approach in microregional studies on example of Michałowice area in iron age, as well as underline need of co-working in the researches groups that allow to efficiently retrieve archeological data.



### **T06S011 - NEOLITHIC COLLECTIVE BURIALS IN EUROPE IN THE LATER 4TH MILLENNIUM BC**

**Organizers: Arnaud Blin** (Institut National du Patrimoine, UMR 7041-ArScAn-Éthnologie préhistorique, Paris), **Anne-Sophie Marçais** (University of Paris Ouest Nanterre La Défense, UMR 7055-Préhistoire et Technologie, Nanterre), **Eleonore Pape** (Roman-Germanic Commission, Frankfurt am Main)

Collective burials became a widespread European phenomenon over the course of the later 4th millennium BC (appr. 3600-3000 BC). Burial monuments of various architectural forms were built, while other older structures were reused. How can we explain the emergence of so many collective burials? How far did this practice spread? There are two keys to understand this phenomenon. Firstly, one can examine closely the mortuary practices. The increasing number of thoroughly excavated sites allows for new approaches of the functioning models of said sites. How was the internal organization, what kind of “gestures” were practiced or distinctly forbidden? Who had access to the grave in terms of age, sex and status, etc.? Do these criteria correspond to a diversity of use, characteristics of different chrono-cultural groups in Europe, or are they based on few homogenous burial traditions? The second key to unlocking this phenomenon lies in dating. In the past years, the number of processed radiocarbon dates and the re-examination of the material finds from such monuments allows for a more precise determination of their chronological context and of their use duration. Can this data also allow us to precise an arrival date in the various regions? Did the phenomenon appear in several places at the same time, or only in one place? How fast did it spread? This session’s chief goal is to assemble an “European” panorama of the collective burials in order to better apprehend the conditions for the emergence and diffusion of this singular burial practice.

### **ORAL PRESENTATIONS**

#### **New Issues on the European Collective Burials in the Later 4th Millennium BC**

**Eleonore Pape** (Roman-Germanic Commission, Frankfurt am Main)

Thousands of collective burials have been discovered all over Europe. The growing number of radiocarbon dates permit to identify a generalization of this mortuary practice during the second part of the fourth millennium BC (3600-3000 BC). This was not a monolithic phenomenon. In some European regions, collective burials became the only funeral tradition and, in others, they coexisted with other types of tombs, like individual burials. Moreover, they could take various architectural forms : megalithic monuments (gallery grave, dolmen,...), shelters or caves (hypogeum). And, finally, the later fourth millennium BC is a period of massive construction of collectives burials, but also of reuse of old monuments, most of them built during the Middle Neolithic. This diversity raises today many questions. Does it mean a variety of mortuary practices or does it mask a homogeneous tradition that remains to be discovered? Some use models could be defined? Is there enough dates to discuss of the arrival date of the collective burials in the various regions and of the spread of the phenomenon? This introductive paper’s goal is to present the main issues of the current research on these European collective burials, particularly the conditions of the emergence and diffusion of this singular burial practice.

## **A Common Destiny for the Dead: Collective Burials in France around 3400-3300 BC**

**Philippe Chambon** (CNRS, UMR 7041-ArScAn-Éthnologie préhistorique, Nanterre)

How and why collective burials spread with so much success across Europe? It seems utopic to answer to this question, but what appears clearly with French data is that collective burials are not actually linked to megaliths. In fact, megalithic chambers offer the opportunity to come back in the grave to make new deposits, but this result might be obtained with other kinds of architectures: wooden chambers, stone or wooden cists; hypogeum, caves... The Middle Neolithic provides many examples of successive burials in the same grave. So, what is new with Late Neolithic? Considering the data, the amazing point is the exponential increase of burials. The number of burials goes from almost nothing in the first half of 4th millennium to thousands in the second half. Taking into account the number of individuals in each site, one can consider that more than hundred thousand people were buried at this time. In each grave, it is as all the dead are treated in the same way: none individual is distinguished inside. It seems that, for a very short time during Prehistory, the dead are sharing a common destiny.

## **Equifinality and Deathways in Late Prehistoric Atlantic Europe**

**Anna J. Waterman** (Mount Mercy University, Cedar Rapids), **Jonathan T. Thomas** (University of Iowa, Iowa City)

In the Neolithic collective burial tradition of Atlantic Europe, demographically diverse groups of individuals are generally interred together in natural or artificial caves, megaliths, rock cut tombs, and tholoi. These types of burials have been commonly been interpreted either as a form of ancestor worship, or related to ideological aspects of group “collectively” in which encroaching social inequalities are masked or mediated in funerary treatment. However, these theoretical frameworks fail to address the phenomenological aspects of death-as the particular social and economic relationships of each deceased member of the community will necessarily influence personal mourning and collective funerary activities. That is to say, the death of a child will be experienced by family and community members in qualitatively different ways than the death of a prominent elder adult even when the skeletal remains of both are eventually buried together. In this paper, we argue that collections of human remains recovered from these late prehistoric burials are best understood as a form of equifinality, in which variable funerary treatments and experiences result in the same final resting place for individuals rather than a monolithic funerary tradition.

## **Who Was Buried at Collective Mortuary Monuments? The Case of Rioja Alavesa-Sonsierra Megalithic Group (Basque Country, Spain)**

**Teresa Fernández-Crespo** (University of the Basque Country, University of Oxford, Leioa)

The main aim of this paper is to reconstruct the funerary pattern of Rioja Alavesa-Sonsierra megalithic group (Basque Country, Spain). A minimum of 208 individuals (51 non-adults and 157 adults) from five tombs (San Martin, Alto de la Huesera, Chabola de la Hechicera, El Sotillo and La Cascaja) are analyzed. The samples are dated back to the period between 3890 and 1320 cal. BC. The study focuses on the estimation of certain paleodemographic parameters compared to population models and other Spanish megalithic collections, as a mean to identify possible demographic anomalies. The results allow to consider a systematic population bias of children under five years old, but also for certain adults, mainly women. The fact is interpreted as the result of a selective burial, where the access to dolmens was most likely restricted only to those with certain rights and privileges.

## **The Mounds Necropolis in Salve, Lecce, Italy (IV-III Millennium BC)**

**Ida Tiberi** (Laboratory of Palethnology, University of Salento, University of Foggia, Lecce), **Giorgia Aprile** (Laboratory of Archeobotany and Paleoecology, University of Salento, Lecce)

Archaeological surface survey carried out in the surrounding of Salve (Lecce), in Apulia (Southern Italy), by the Palethnology group at the Department of Cultural Heritage - University of Salento, led to the identification of 90 mounds, with a circular or oblong shape, spread over an area of about one hundred hectares. Systematic excavations allowed to identify the mounds as funerary structures, with some of them having megalithic features, dated to IV -III millennium BC. Interesting, in the same area and in some cases, even within the same mound, both the inhumation and the cremation rituals are testified by the human rests and are closely associated with pottery stylistically attributed to the two cultural aspects, widely diffused in Southern Italy Copper age, Gaudio and Laterza. Of the ninety identified mounds, eleven underwent systematic archaeological excavations. The mounds no. 1, 6, 10 and 68 contained human remains of 2-5 individuals, either scattered or contained into pots. The mound no. 7, the largest mound so far excavated, contained human bones of fifty buried individuals and, at the base of the mound, three pots with the cremated rests of two individuals.

## The Place of Children in Neolithic Collective Burials from France

**Mélie Le Roy** (UMR 5199 PACEA, University of Bordeaux, Bordeaux), **Stéphane Rottier** (UMR 5199 PACEA, University of Bordeaux, Bordeaux), **Frédéric Santos**, **Anne-Marie Tillier** (UMR 5199 PACEA, University of Bordeaux, Bordeaux)

The increase of Neolithic collective graves recently excavated in France allows to question the population structure in each of them. The available documentation can highlight the potential absence or over representation of some age classes, by comparison with a theoretical mortality pattern. Demographical patterns illustrated by 57 funerary sites were established in order to allow an accurate comparison of the data. The collective graves under study were sorted according to the age at death of the subjects represented in each tomb. The spatial distribution and the architectural type can therefore be discussed firstly at a global scale (the whole territory) and secondly at a regional scale. Distribution of the age classes favors the hypothesis of differential treatment within the non-adult groups and with regard to the adult cohort as well. It appears that children status was not strictly identical among the buried population of the collective graves, considering geographical areas and architectural types. The identified occurrences allow to discuss cultural influences within the funerary sets.

## The Gallery Grave of Bazoches-Sur-Vesle. First Results of the Archaeo-Anthropological Analysis

**Anne-Sophie Marçais** (University of Paris Ouest Nanterre La Défense, UMR 7055-Préhistoire et Technologie, Nanterre)

The phenomenon of collective burial that spread across Europe during the later 4th millennium BC has become one of the defining characteristics of the Neolithic period. The Paris basin did not escape this wave of collective grave construction with more than 400 graves discovered, since the beginning of the 20th century. Some of the most well documented can be found at the archaeological site in Bazoches-sur-Vesle (Aisne), which was opened in 1986. The site boasts a rare example of a timber chamber excavated using modern methods. No less than 96 individuals were buried in this tomb, during the second part of the 4th millennium. The composition of the buried population, as well as spatial analysis of the bodies according to age and sex, allows us to learn more about access to the grave, burial traditions and internal organization. Stratigraphic analysis of the remains also provides information on the succession of burials. This session's main aim is to show the first results from the study of these bodies and how they demonstrate the changes that took place during the use of the tomb.

## Use of the Paris Basin Gallery Graves during the Later Fourth Millennium BC

**Arnaud Blin** (Institut National du Patrimoine, UMR 7041-ArScAn-Ethnologique préhistorique, Paris)

One hundred and thirteen gallery graves have been discovered in the Paris basin, within a century and a half. Collective burial was practiced in these tombs, defined by a stereotyped plan (rectangular chamber preceded by an axial entrance and an ante-room) and by variable materials (large slabs, dry-stones, wood or a combination of those materials). Radio-carbon dates and the archaeological artifacts show that 90% of them have been built and used, at least, during the second phase of the Late Neolithic, currently estimated as 3350-3000 BC. The re-examination of the human skeletal remains from the best preserved sites, like the tomb of La Chaussée-Tirancourt, permits to improve our understanding of the mortuary practices and of the criterions of the individuals selection and distribution. Four types of internal organizations appeared during the Late Neolithic. Each of them are associated to specific burial gestures, particularly a greater or lesser importance of the bone removals after corpses' decomposition. In some of them, the abnormal repartition of discrete characters is evidence for biological differentiation between groups of the archeological populations. These funeral tradition occurred till the beginning of the third millennium BC, during which more than 70 % of the gallery graves stopped being used.

## The Gallery Graves of Germany: A Special Megalithic Phenomenon in Central Europe

**Kerstin Schierhold** (University of Münster, Münster)

Recent investigations enabled new insights into the rise and fall of the megalithic phenomenon at the northern border of the Central German Uplands, where up to 50 gallery graves are known today. Two gallery graves in Erwitte-Schmerlecke, Westphalia, were excavated. Especially tomb II presents well-preserved human bones, whereas the grave goods of both tombs are in good condition and numerous. AMS data and archaeological remains show that the tombs were probably built at least around 3700/3600 cal. BC and used for nearly 1000 years; then, single burial mounds were built in close vicinity, using the same place for burying like the ancestors did so long times. Taking Erwitte-Schmerlecke as an example, other gallery graves are compared concerning construction, burial customs, distribution, and dating, to get an overview of the character of this special megalithic phenomenon. Furthermore, relations to the Funnel Beaker Culture with its impressive, landscape-shaping megaliths have to be discussed as well as the long-known, striking similarities to the gallery graves of the Seine-Oise-Marne Culture in the Paris Basin: can we detect the roots of the German gallery graves here or there, or did they emerge on their own?



## **Megalithic Graves on Rügen, Germany. Enclosed and Exceptional in the Heart of the TRB North Group**

**Anja Behrens** (Deutsches Archäologisches Institut, Berlin)

The island of Rügen, situated in the north-east of Germany in the Baltic Sea, represents an enclosed glacial formed region with a richness of natural resources. Long term researches as well as new excavations in this area show a deep impact by Neolithic cultures at the beginning of the 4th millennium BC. Archaeological finds in combination with an opening landscape refer to the Funnel Beaker Culture. The distinctive architecture and high number of their burial places (the megalithic graves) together with exceptional ceramic types imply a regional proprietary development. Due to a lack of dating Rügen was always described as a late influenced region by the mainland. But new results show that this conclusion might not be true anymore.

## **Neolithic Mortuary Houses – Fact or Fiction?**

**Anne B. Gebauer** (Guest researcher at the National Museum, Copenhagen)

The role of ritual buildings from the Danish Funnel Beaker period has been a topic of discussion for half a century. The purpose of these structures, built between 3300-3100 BC, is discussed based on a new study of their construction and inventory. The sacred character of the buildings is reviewed in terms of topographical location in relation to the landscape and other monuments, the characteristics of the architecture in underlining the difference to the profane, the presence of ritual symbols as well as evidence of proscribed participation and offering along with investment of wealth and resources. Also, the activities taking place in the mortuary houses are related to rituals at contemporary megalithic tombs and causewayed enclosures.

## **Chronology and Reuse of Neolithic Collective Graves in Falbygden, Sweden**

**Malou Blank** (Department of historical studies, University of Gothenburg, Gothenburg), **Karl-Göran Sjögren** (Department of historical studies, University of Gothenburg, Gothenburg)

This paper discusses the introduction and duration of use of the collective graves in Southern Sweden. The chronology of these graves is examined with new analysis from Falbygden. Falbygden, in the inland of Southwestern Sweden, has one of Northern Europe's largest concentrations of megalithic graves and is an important area for the research on Neolithic collective graves in Scandinavia. Three different types of megalithic tombs have been distinguished, based on typological studies of chamber forms and pottery. The increasing availability and precision of radiometric dates offers new possibilities to study the use and chronology of these different graves. Falbygden has a high frequency of radiometric dates and recent studies have increased our knowledge about funeral practices of gallery graves and use of megalithic graves over time. The aim of this paper is to discuss the emergence and chronology of the different types of megalithic tombs in Falbygden and to compare this with other sites in present day Southern Sweden using the available radiometric dates. The relation of reuse of the earliest graves and the construction of the later collective graves will additionally be explored.

## **From Collectivity to Burial**

**Radoslaw Szczodrowski** (UMK, Torun)

This work is dedicated to collective burials as elements of different cultural traditions of the late Neolithic in the Polish territories, including Funnel Beaker Culture, Globular Amphora Culture and Złota Culture. Collective burials will be considering as a ritual in relation to other types of burials (including animal burial) within a single cultural unit. Attempt shall be made to describe how the ritual pattern is transferred *from* one cultural system to another. The work will explore the possibilities of reasoning about the social system through the archaeological data. As an issue will be also analyzed the time, in the context of collective burials and burials associated with each other. The work will use archaeological data as well as anthropological theories of ritual.

## **The 3D Social Space of Caucasian Dolmen Cemeteries: Kinship – Linage – Rank**

**Viktor Trifonov** (Institute for Study of Material Culture of History, Russian Academy of Sciences, Saint-Petersburg)

In the end of the 4<sup>th</sup> - 2<sup>nd</sup> millennium BC, the Western Caucasus was occupied by the Dolmen culture named for its megalithic mortuary constructions housing collective burials. The existence of about 3,000 dolmens has been documented. These are usually clustered in groups of 2 to 3 up to several dozen structures. The largest groups consist of about 500 dolmens. The survey revealed clear signs of intentional arrangements of dolmens in clusters and rows, so that the whole area of the dolmen cemetery looks like a deliberately structured megalithic enclosure, not just a random grouping of dolmens. Anthropological tests in combination with the isotopic studies opened the way to making demographic calculations. Based on the size and composition of the social unit related to a single dolmen, we made a rough determination that a family used it. A single dolmen can be used as a unit of measurements for revealing and evaluating basic social relations (kinship – lineage – rank) fixed in architectural features of the dolmens and spatial patterns of their arrangements in clusters within the cemetery. The dolmen cemetery can be interpreted as a cultural material matrix which helps to maintain, perpetuate and reproduce traditional social frame of the society.



## **A Case of Collective Burial from Goranboy/Ganja, Azerbaijani**

**O. Dilek Erdal** (Hacettepe University, Ankara), **Bakhtiyar Jalilov** (ANAS Institute of Archaeology and Ethnography, Baku), **Yilmaz S. Erdal** (Hacettepe University, Ankara)

In this study, it is aimed to examine the collective burial from Uzun Rama cairn, dated to 3150-3100 B.C. by using bio-archaeological methods. Considering a few in-situ, articulated skeletal parts, it is detected that the individuals were buried in flexed position with grave goods. However, the human remains were mostly scattered and non-articulated. According to the axial skeletons, the minimum number of individuals is 83. There are, at least, 36 males, 24 females, 16 children and 3 infants. The majority consists of young and middle aged individuals. Yet, no infants under age one was found in the cairn. Taphonomic data suggests that the individuals were buried continuously in time and there is not any sign of interpersonal violence or warlike activity in connection with burial customs. More than 13 thousands defined bone fragments were examined according to the burning condition. The 88% of them was affected by fire. The studies on Uzun Rama cairn reveal those conclusions; the dead over age one were buried in the cairn consistently over time. After the last use of the cairn, the burning ritual was conducted deliberately. Burning was intentional and might be related to the closing ceremonies similar to Near Eastern Neolithic sites.

## **POSTERS**

### **New Methodological Approaches on the Megalithic Collective Burials through the Study of Barrow Architecture: The Golf du Lion (Southern France)**

**Noisette Bec Drelon** (University of Aix-Marseille I, UMR 7269-LAMPEA, Aix-en-Provence, Marseille)

Megalithic structures from Southern France were the main center of interest of researchers since the beginning of the century. Several excavations were lead between the 30's and the 70's, concerning exclusively the internal spaces of these tombs (burial chamber, access system). Grave goods and bones were collected without any recording, making their contextualization impossible. It is only in the 80/90's, when the "archéothanatologie" concept was developed, that excavation methods considered grave goods and bones inside the structures. Nevertheless, chronology and architecture of megalithic tombs still not well documented. In order to tackle this specific field of research, stress was made on the external structures of the megalithic tombs: the barrows. How were they constructed, which material and wherewithal were used? What was their function? Could typology, disparities or similarities both geographical and/or cultural be highlighted? In order to answer these several questions, surveys were carried out on seven dolmens from Southern France. This research is mainly localized on the Golf du Lion and more precisely on Hérault valley, meridional Larzac and the eastern edge of the Pyrenees. Results allowed to have a more structured point of view on the megalithism phenomena in the North-Western Mediterranean.

### **La Sépulture Collective de Passy-Véron "La Truie Pendue" (France - Yonne)**

**Sandrine Thiol** (INRAP Grand Est-Nord, Reims)

The grave takes place in a large monument, marked on the ground by 29 posts. This "house of the dead" is compartmentalized: the north-west room is reserved for an individual burial of a child (between 1 and 4 years old), accompanying with a pottery, whereas in the south-east room, there was the collective burial of 65 individuals (35 adults for, at least, 6 males and 2 females, 30 children with an over-representation of the age class (5-9) years old), dated of the Late Neolithic. The corpses have been buried in a wooden coffin, openable at the east, whose the planks have been wedged by sandstone and flint blocks. Only very few flint blades have been found inside the bone assemblage. On the 5 lower layers, according to the identified anatomical connections, the individuals have been buried top and tail, while, in the upper layers, the bone distribution indicates important removals (skull along the walls, long bones of the members ranged in bundle). The burial will be sealed by fire (bone reaction to the heat, rubefaction marks till the bottom of the pit).



## **T06S012 - THE ARCHAEOLOGY OF LATE MEDIEVAL AND EARLY MODERN MASS GRAVES**

**Organizers: Hugh Willmott** (Department of Archaeology, University of Sheffield, Sheffield), **Hélène Réveillas** (Anthropologie de Populations Passées et Présentes - UMR 5199 PACEA, Université Bordeaux 1, Bordeaux)

The last two decades has seen the increasing discovery of later medieval and early modern mass graves across Europe. Burials that include multiple interments deposited in a single action, or over a very short period of time, have been found to have occurred as a result of epidemic events or military action. Most studies have tended to concentrate on the dead themselves, focusing on the demography of the buried populations and identifying evidence for pathology and trauma. Whilst such studies, which are often undertaken in isolation, are important a broader consideration the context of the grave is also required. Examination of the construction of the grave, the arrangement of the bodies, the topographical location of the interments, and their relationship with other 'ordinary' burials can all shed light on contemporary attitudes

to these events. Indeed, although military and epidemic graves clearly arose from very different circumstances, there may have been common responses to the way that mass fatalities are dealt with. This session will bring together researchers from across Europe working on all aspects of mass graves to provide a new interdisciplinary overview and more nuanced understanding of the phenomenon.

## ORAL PRESENTATIONS

### **Death Outside the Gates: A 13th-Century Mass Grave at College Site, Sidon, Lebanon**

**Richard Mikulski** (University of Exeter, Exeter), **Holger Schutkowski** (University of Bournemouth, University College London, London), **Claude Doumet-Serhal** (University of Bordeaux, Bordeaux), **Christopher J. Knüsel** (University of Exeter, Exeter)

Between 2009 and 2010, during research excavations led by Dr Claude Doumet-Serhal at College site, Sidon, an unusual funerary context came to light. This context, known as Burial 110, appears to represent the remains of at least fifteen individuals with both disarticulated and articulated elements present. An initial radiocarbon date has returned a date of AD1150 - 1250 for the deposition of the majority of the remains within the earth-cut pit of Burial 110. Finds recovered, together with this skeletal material, appear to indicate the remains are crusader in origin and corroborate the radiocarbon results. Therefore, these remains from Sidon represent a rare opportunity to investigate aspects of late medieval warfare and treatment of the dead in such times of conflict. This paper builds on initial observations concerning the nature and setting of the burial context, following new discoveries between 2011 and 2013. Results of demographic analyses and cranial trauma rates for the skeletal remains are presented, and macroscopic observations pertaining to the human remains are highlighted. The results are considered in light of the burial context and historical sources related to the period and location.

### **The Identification, Characterisation and Contextualisation of a 14th-Century Mass Grave at Thornton Abbey, Lincolnshire, UK**

**Hugh Willmott** (University of Sheffield, Sheffield), **Peter Townend** (University of Sheffield, Sheffield)

In 2013 a previously unidentified late medieval mass grave was discovered and excavated on a mound in the southern precinct of Thornton Abbey, Lincolnshire. The outline of the burial pit was initially identified by resistivity survey and thought to represent the footprint of a medieval building, centred on the northern half of the flat-topped mound. Following excavation it was established that the feature was a shallow pit, and found to contain the remains of over fifty individuals. Dug into sand, the grave could not easily be identified with the naked eye and a range of techniques were engaged to characterise its form and aid excavation. In addition, a detailed topographic survey of the mound was undertaken to place the burial within its wider context. This survey enabled location of the historically documented Hospital of St. James and a previously unidentified trackway to the west of the mass burial. This paper will focus on the results of these surveys, explain how the results aided the identification and characterisation of the burial, and provide a brief explanation for why the medieval hospital and the mass grave were originally placed in this location.

### **Hurried to Their Graves: Rural Mass Graves in a Bio-Cultural Context**

**Diana Mahoney Swales** (University of Sheffield, Sheffield)

The burials from Thornton Abbey provide a rare example of the effects of short-term mass fatality upon a rural community in England. The mortality profile and distribution of burials within the mass grave informs not only on the physical effects of the underlying cause of death on the contributing population, but also the impact upon the survivors. The socio-cultural context of such events is reflected in the choice of burial and burial location. To understand the factors influencing the burial archaeology of the Thornton Abbey mass grave, and the attitudes of the living towards the diseased and deceased in the late medieval and early modern periods, comparisons are made with other English mass graves and rural populations affected by mass fatality. Particular emphasis is accorded to the village of Eyam in the Peak District (South Yorkshire), which was struck by plague in 1665-6. Attention is also paid to historical documentary sources addressing issues related to mass mortality and plague to enhance the current bio-cultural understanding of mass graves beyond urban centres.

### **The Archaeology of Mass Graves: The Alkmaar Case**

**Rachel Schats** (Leiden University, Leiden), **Menno L.P. Hoogland** (Leiden University, Leiden)

The Franciscan cemetery in the Dutch city of Alkmaar (AD 1448 to 1572), was excavated by Leiden University in 2010. Unexpectedly, two mass graves relating to the Siege of Alkmaar in 1573 were uncovered. Detailed analyses of construction of the graves, body arrangement, and taphonomic processes were carried out to gain a better understanding of this important historic event and the attitudes towards death and burial during conflict situations. The mass graves appear to have been the last burials in the cemetery, partly dug through earlier graves, and taphonomic analysis suggests that not all

individuals were interred at the same time. The individuals in both graves were buried in four successive layers. Examination of the body arrangement shows that the individuals are treated according to the religious conventions of the time, even though some of the individuals were buried in the opposite direction; the reversal of burial orientation is more likely to be due to time or space constraints and not a reflection of disrespectful intent. This paper will discuss the results of the detailed contextual and taphonomic analysis of the mass graves to provide new insights into the Siege of Alkmaar and notions about death and burial during conflict.

### **Multiple Burial in a Byzantine Church Crypt: Questions and Interpretations**

**Tatyana Shvedchikova** (Institute of Archaeology of Russian Academy of Sciences, Moscow)

In 2010-11 rescue excavations of a Middle Byzantine church (dating to between the 9th-11th centuries) in the region of the Imeretinskaya lowland, Black Sea, Russia were undertaken prior to development in preparation for the Sochi Olympic Games. It was well-preserved construction, with an underground burial vault measuring 2x8 metres. The architectural characteristics of the building suggested that it was built by Greek architects, whilst certain special features suggested that it was the monastic centre. In addition to the cemetery burials located near the church walls, numerous skeletal remains were found within the crypt. A standard bioarchaeological approach was applied to study of the material, and some skulls (all young males) had the traces of severe wounds on the temporal and parietal bones. Taphonomical approach and stratigraphical analysis helped in the understanding the role these buried people had, who were identified as the defenders of the complex who lost their lives during a period of violent conflict.

### **Bringing Up the Bodies: The Missing Casualties of the English Civil War**

**Rachel Askew** (University of Sheffield, Sheffield)

The English Civil War (1642-1651), in which an estimated 3.7% of the English population died, is the bloodiest conflict in the country's history. However, the resting place of many casualties remains a mystery and only two mass graves associated with the war, at York and Abingdon, have been identified and excavated. The lack of inhumations is particularly noticeable at the three main battlegrounds of the conflict where over 6,500 people died: Edgehill (1642), Marston Moor (1644) and Naseby (1645). Although antiquarian accounts record the location and discovery of human remains at these sites, there has been little recent work to confirm these findings and, as a result, the location of mass graves is still largely a matter for local tradition. Analysis of the location and profile of graves, as well as the remains themselves, offer important insights into the physical and social impact of the conflict, both during the mid-17th century and in subsequent centuries. As a result, this paper will review the current historical and archaeological evidence for mass burials associated with Civil War battles. It will demonstrate the need for greater efforts to be made in identifying and investigating possible mass burial sites and discuss future avenues of enquiry.

### **Issues Regarding the Use of Lime in Multiple Burials**

**Eline M.J. Schotsmans** (University of Bordeaux, Bordeaux), **Katrien Van de Vijver** (University of Leuven, Leuven), **Sacha Kacki** (University of Bordeaux, Bordeaux), **Dominique Castex** (University of Bordeaux, Bordeaux)

When mass burials are discovered, analysis of the taphonomic environment is as important as the study of the human remains. The aim of this presentation is to bring the presence and significance of lime in multiple burials to the attention of archaeologists and anthropologists by detailing the case examples of the cemeteries of St. Rombout's in Belgium (12th-18th century) and Barcelona in Spain (14th century). Although lime has been applied to burials throughout history, there is clear contextual, chronological and regional diversity, different intentions and several misconceptions. Lime can vary chemically and have different appearances such as a cast, chunks, a white layer at the bottom of the grave, or as grains in the grave fill. Ultimately the use of lime in a burial could be missed if this is not considered relevant to a specific excavation and if observations are not recorded. Many questions regarding lime burials remain unanswered. It is not always clear how lime was applied to burials, what the intentions were and how it should be interpreted. Only by publishing more lime burials in the future can more questions be addressed.

### **The Impact of Medical Knowledge of "Contagion" on Burial Practices during Epidemics in France between the 14th and 18th Centuries**

**Isabelle Souquet-Leroy** (Institut National de Recherches Archéologiques Préventives, Communauté Urbaine de Bordeaux, Bordeaux), **Hélène Réveillat** (Anthropologie de Populations Passées et Présentes - UMR 5199 PACEA, Université Bordeaux 1, Bordeaux)

Does a link exist between medical advances made during the 18th century and the modifications in funeral customs, especially those dealing with epidemic deaths, that took place at the end of the Middle Ages and during the early modern period? Recently a number of archaeological discoveries from France have enabled a better knowledge of burial practices in epidemics, especially with plague to be achieved. From the medieval period to the early 18th century, the management

of corpses in multiple burials shows a control in the preparation and the disposition of the bodies, that is not consistent with them to have been “thrown” in the grave, implying some form of physical closeness between the living and the dead. Consequently, it seems that gravediggers were not afraid of the risk of contagion and this can be perceived in several significant examples of archaeological sites. On the other hand, from the first quarter of the 18th century, a radical change in funerary practices can be observed, which coincides with a rising expression of fear and panic, especially noticeable on the French territory during the last plague episodes. During this century, medical knowledge on the transmission of diseases evolved, and the new notion of contagion by “small and invisible living things” generated new reactions towards the ill and the dead, as a preventive measure. This presentation focuses on funeral practices brought into play in epidemic contexts, based on several French case studies, both parochial and from hospital sites. It discusses what inhumation practices can teach us about contemporary notions concerning the transmission of the diseases, and the perception of contagion from the end of the Middle Ages to the beginning of the modern period.

### **Mass Graves and Epidemics: Demographic Patterns and Bioarchaeology of Plague**

**Pascal Sellier** (CNRS - équipe Ethnologie préhistorique de l'UMR, Nanterre Cedex) **Dominique Castex** (University of Bordeaux, Bordeaux)

The identification of mass graves is basically an archaeo-anthropological problem as far as evidence for the simultaneous deposition of the internments is concerned. However, the cause of many deaths in a short span of time is also a bioarchaeological problem. Together with archaeological, bioarchaeological and microbiological clues to the cause of numerous deaths within a short range of time, demographical tools have proved to demonstrate evidence for certain epidemic events. Both historical and archaeological data can now be included in the epidemic record in order to show that there is indeed a specific plague pattern among the demographic profiles of some of the mass graves from late medieval and early modern populations; it is a way of questioning the nature and the meaning of the skeletal assemblage. Theoretical issues will be addressed with archaeological case studies, which shall show that we can indeed define a “plague pattern” from historical and/or archaeological sites from all over Europe.

### **Interpreting Mass Burial in Medieval London**

**Brian Connell, Amy Gray Jones, Rebecca Redfern, Don Walker** (Museum of London Archaeology, London)

Mass burial pits discovered in the medieval cemetery of St Mary Spital in East London, were presumably a response to a dramatic increase in mortality. Originally thought to be from the Black Death, targeted radiocarbon dating placed the burials 100 years earlier, around the middle of the 13th century. Despite the emergency nature of the graves, care and order was evident in the laying of bodies within the pits. While the demographic evidence reflected a catastrophic assemblage, there was no specific osteological indication of the nature of the emergency. Contemporary English sources noted a cool period from February to June 1258 and a very cold winter in 1260-1261. Severe summer and autumn rains led to crop failures throughout north-west Europe. In England this caused rising grain prices and famine, and increased rates of migration from the countryside to London. A great pestilence struck the city in the spring of 1259. The largest volcanic eruption of the last millennium occurred in 1257. This would have caused significant summer cooling, possibly on a global scale, due to the stratospheric spread of a blanket of particles. It may be that the St Mary Spital burials were part of this volcanic global scenario.

## **POSTERS**

### **Military Mass Graves from Prague-Karlín**

**Pavel Kacl** (Archeo Pro, o. p. s., Prague)

A Protestant and military cemetery dating from the 18th and 19th century was excavated in 2013 at the Hôtel les invalides in Prague. Besides hundreds of single interments belonging to civil population, soldiers, veterans or invalids, the research documented tens of multiple and mass graves as well. Dated to the War of the Austrian Succession and the Napoleonic Wars, the mass graves show different characteristics, such as dimensions, number of the dead, or respect of placement. Most of the buried people were young men; nevertheless there occurred some female and children skeletons, too. In the case of the Napoleonic mass graves, frequent absence of wounds or surgical interventions on the bones is in contrast with the fact that the vast majority of the skeletons are remains of Austrian, Prussian, Russian as well as French soldiers, who died in Prague's improvised hospitals after massive battles in 1813. The archaeological record provides an interesting point of view on these historical events.

### **Case of an 18th-Century Mass Grave in Yaroslavl City: Options for Interpretation**

**Irina Reshetova** (Institute of Archaeology, Russian Academy of Sciences, Moscow)

Anthropological materials of 17th- to 18th-century date centuries from Yaroslavl city (Upper Volga region, Russia) are of interest in the reconstruction of urban populations and lifestyles. In particular is the finding of a mass grave from rescue

excavation of the Yaroslavl historical centre in 2012. The date of burials can be determined to be from the end of 17th until middle 18th century, according to the archaeological data. Taphonomic patterns of the grave suggest that the burials were secondary in nature; isolated skulls with separated mandibles were accumulated in the one part of grave, and individual fragments of postcranial skeletons were located in another. The expected minimum number of the individuals was determined to be about 224. Only 25 of these were infants under 12 years of age, and for the most part the majority of the individuals were bordering between the mature/old age range. The group also displayed the following patterns: low infant mortality, an approximately 1:1 ratio between sexes, and the absence of combat-related injuries. All of these suggest an unaggressive lifestyle for the dead, although there is clear evidence of stress markers and other pathologies in the skeletal collection. A high frequency of cases of odontogenic osteomyelitis as well as bacterial infection (treponematosis) were determined. These findings suggest a special purpose for the cemetery, or this particular area. Finally the special social status of the investigated group is considered, as according to historical data the alms-house was located in this part of city during the 18th century.



### **T06S013 - MEDIEVAL BURIAL PRACTICES IN EUROPE AND THE NEAR EAST: CHALLENGES, APPROACHES, POTENTIAL**

**Organizers:** **Philippe Blanchard** (Institut National de Recherches Archéologiques Préventives, Tours), **Sophie Moore** (The British Institute at Ankara, Ankara), **Sherry C. Fox** (INRAP, Paris), **Mark Guillon** (The American School of Classical Studies at Athens, Athens)

In recent years archaeological excavations have yielded considerable new information regarding the burial practices of medieval communities. This session sets out to establish the current state of the field of mortuary archaeology in Medieval Europe and the Near East. Our goals are: (1) to discuss current methodologies and results, working comparatively across regions and religions and (2) to open the floor to discussion of future disciplinary aims in terms of data collection, management and presentation. We invite papers which discuss how cemetery data can contribute to narratives of broad scale historical change, and particularly papers which address definitions of 'normal' or 'deviant' burials from Jewish, Islamic, Christian and other populations. We invite the presentation of data at two scales, from individual tombs to entire cemeteries. The session aims to incorporate both osteological and historical analyses of cemetery sites. It is our hope that this session will enable wide-ranging inter-specialty discussion of a dataset with very specific challenges and potential. In placing the variety of practices side-by-side, we hope to elucidate patterns in both ancient data and modern practice.

## **ORAL PRESENTATIONS**

### **Cemeteries and Funeral Rites of Mediaeval Jewish Communities in Europe: An Early Assessment of Recent Research**

**Philippe Blanchard** (Institut National de Recherches Archéologiques Préventives, Tours), **Patrice Georges** (Institut National de Recherches Archéologiques Préventives, Tours)

Up until very recently, the history of mediaeval Jewish communities remained little known and was only viewed through the prism of written sources. Since the 1980's, developer led excavations across Europe have produced new data which has helped to renew our knowledge of these populations and their way of life. The archaeology of Judaism is an emerging discipline which encompasses different domains including the study of ancient burial grounds. Some twenty sites have been excavated in several countries over the last thirty years and we are now able to make a first appraisal of these cemeteries which still remain all too rare. The funeral rites of these populations may now be approached through archaeological evidence which may then be confronted with written and iconographical sources. This presents the interest of allowing comparative studies of burial practices within the different cultural zones of Judaism (Ashkenazim and Sephardim) as well as in relation to Christian and Muslim communities. One of the goals is the development of means to identify these Jewish cemeteries since they are still often misunderstood and, in some contexts, may go unnoticed, especially in the absence of characteristic or inscribed gravestones.

### **Christian, Jewish and Muslim Burial Practices in Medieval Toledo (Spain)**

**Arturo Ruiz Taboada** (Center of International Studies in Toledo. Fundación Ortega Marañón, Toledo)

The societies along the history, have observed their existence reflexions in the death. Independently of their religion, the funerary world has more to do with the social, familiar and religious context than with the deceased himself/herself. This way, over time, we have seen a great number of ways to understand the death, rituals, customs and burial practises. The historical texts are an essential source to know the medieval funerary context, although the archaeology is the only one



able to precise about details, styles and superstitions. I analyses the Christian, Jewish and Muslim medieval burial rituals and introduces a new study field to understand the medieval funerary world in Toledo. The expulsion of the Jews and Muslim at the end of the 15th century by the Catholic Monarchs and their later politics of elimination of any symbol or memory of their pass in Spain, are making difficult to recover the memory and the material remains that accompanied their culture. Until century 12th, Christian, Jewish and Muslim rest outside the city walls, after the take of Toledo by Alfonso VI, Christian started using the parish churches inside the city as burial ground.

### **Funerary Spaces and Medieval Muslim Graves in France: Deadlock or Some Reasons of Hope**

**Yves Gleize** (Institut National de Recherches Archéologiques Préventives & UMR5199 University of Bordeaux, Bordeaux)

Despite acknowledged Muslim presence in France during Middle Ages, there are few material vestiges. Islamic objects are difficult to interpret because they could be due to exchanges. In this context, burials respecting Islamic customs are very good markers because funerary practices could be codified. After a historiographical review, we will return on rare archaeological discoveries and historical data to question integration of Muslim people in medieval funerary spaces. Given the lack of documents it's important to approach this problem with an integrated methodology using archaeological, textual, osteological, genetic informations. For example in early Middle Ages, archaeological analysis of Muslim graves excavated in Languedoc region and osteological and genetic analysis inform on identity of deceased. For High Middle Ages several data (stela, graves, and texts) bring some clues to discuss on the existence of specific or not specific funerary spaces. More than a state of actual researches we try to pave the way for a future archaeology of Muslim funerary practices in south of France. It could be important to think about what kind of information burials could bring on medieval Muslim community in France. The different facts could be connected with historical data linked with Muslim presence.

### **The Black Death in Mamluk Cairo, the Cemetery of Bab Al-Guhrayb**

**Stéphane Pradines** (Aga Khan University, Institute for the Study of Muslim Civilisation, London), **Philippe Blanchard** (Institut National de Recherches Archéologiques Préventives, Tours)

The Black Death in Mamluk Cairo, the cemetery of Bab al-Guhrayb This paper presents a well-known history of Mamluk Cairo, but unknown to archeology: plague epidemics during the fourteenth century. Excavations have revealed this history through a unique documentation, the cemetery of Bab al-Guhrayb. Our research on the site (of the Parking Darassa) took place from 2001 to 2009, with the support of the French Institute of Archaeology and the Aga Khan Foundation. This site is remarkable both for its location in the city at less than 350 meters to the east of the al-Azhar mosque, and for the wealth of the Fatimid, Ayyubid and Mamluk remains exhumed. Our presentation will describe the Mamluk graves and the funerary rituals in their historical and urban context, but also as witnesses to a profound social and demographic crisis.

### **Romans, Christians and Pilgrims at Hierapolis in Phrygia**

**Sven Ahrens** (Norwegian Maritime Museum, Oslo), **Gro Bjørnstad** (Norwegian Institute of Public Health, Oslo), **Rasmus Brandt** (University of Oslo, Oslo), **Henrike Kieseewetter** (Tübingen University, Tübingen), **Elise Naumann** (University of Oslo, Oslo), **Michael P. Richards** (University of British Columbia, Vancouver), **Helene Russ** (University of Oslo, Oslo), **Camilla Cecilie Wenn** (University of Oslo, Oslo)

The University of Oslo has since 2007, on the invitation of the Italian Archaeological Mission at Hierapolis in Phrygia, been investigating the east necropolis at Hierapolis, the Roman necropolis in which also the apostle Philip was buried. The cult which developed around the apostle in the late Roman and early Byzantine times had a marked effect on the history of the east necropolis, a history which can be followed through the use, reuse and reuse of the reuse of the Roman necropolis all the way up to about AD 1300, and to a certain extent contrasting what we know of the habitation and activity in the ancient city. Using the results from meticulous excavations and studies of the deposited skeletons (including C14-, DNA-, and isotope-analysis) and artifacts our aim is to give some insights into the changing burial practices of the area and the people practicing them. The presentation, with a view to future studies, will also include an evaluation of the work invested and the results obtained.

### **Topography and Funerary Ritual in al-Andalus. The Case of Cordoba**

**Alberto León** (University of Cordoba, Cordoba)

Preventive archaeological interventions carried out in Cordoba during the last two decades have brought into light a very significant sample of cemeteries of the capital of the Umayyad state in al-Andalus. A global analysis has allowed us to reach several conclusions about the typological characteristics of the tombs, the topographical distribution of these maqabir, their connection with some other urban elements (such as mosques, baths or fluvial courses), their relation with Christian and Jewish funerary areas, etcetera. All these aspects permit the tracking of the islamization process of the inhabitants of



the city during the first centuries of the Islamic presence. The influence of the maliki doctrine and the guidelines settled by the Umayyad dynasty in the capital of al-Andalus were probably decisive in the characterization of its funerary practices. Finally we will contrast all this with information documented in other cities and in rural areas, in order to show a general frame of funerary rituals of the Islam of al-Andalus.

### **The Maqbara of Tossal de Manises (Alicante, Spain). The Funeral Ritual since 8th Century at Sharq al-Andalus**

**Manuel Olcina Doménech** (MARQ, Alicante), **Eva Tendero Porras** (MARQ, Alicante), **Antonio Guilabert Mas** (MARQ, Alicante)

The maqbara of Tossal de Manises (Alicante, Spain) is one of the earliest examples of Islamic burials in the Iberian Peninsula. It is dated by three radiocarbon samples between 8th century to 10th century; it presents from an early date (670 ± 40 AD), an undisputed ritual uniformity, with the exception of a single Christian burial. The 109 identified graves are arranged in longitudinal and cross streets, without overlaps, showing a phase of a single use over time. The presence of lajd or shaq, where the body is fitted, it has been repeatedly documented and, more rarely, the taswiyat al-qubūr or equalizing the grave with respect to the surface in transit, the complete absence of funerary offerings are a generalized feature. Its location in the territory of Laqant, one of the seven civitates quoted in Pact of Theodemir (713 AD) where a Visigothic dux presented part of Sharq al-Andalus to 'Abd al-'Azīz Ibn Mūsā Ibn Nusair -first Andalusian governor-, it is fully placed in the immediate scenario to the Muslim conquest. Our case entailed the implementation of a funeral ritual fully set, without transitional phase or trial, and of foreign character.

### **The Cemetery of Arslantepe - Malatya**

**Francesca Dell'Era** (Freelance archaeologist, Rome)

Arslantepe is located close to the village of Orduzu, in the south-eastern part of the Malatya plain, 15 km east of the Euphrates. The investigation of the site is lead since 1961 by an Italian team of the Sapienza University Rome, currently directed by Professor Marcella Frangipane. The excavations of the mound have evidenced, until today, an uninterrupted occupation whose beginning goes back at least to Late Chalcolithic period, and the site is known worldwide for its pre and protohistoric settlements. The latest human traces at the site are related to a cemetery, partially excavated, located on the top and on the western flank of the hill. More than a hundred burials have been excavated since 1972, cut into layers and buildings of previous occupations. Recent excavations of part of the cemetery have brought to an increase in available data that will be illustrated in the present paper. Grave goods and personal adornments are found but not abundant and on the basis of them we can ascribe the cemetery to the Byzantine and Ottoman period.

### **Medieval Burials in Anatolia, Problems of Identification and Classification**

**Sophie Moore** (British Institute at Ankara, Ankara)

This paper will present the results of research into Medieval Byzantine mortuary practice, between the 9th and the 11th centuries AD. I will discuss the characteristics of typical and atypical Christian and Muslim graves collated from fourteen case study sites, largely in central Anatolia, and discuss the extent to which developing categories of 'normal' and 'deviant' categories of burial enabled analysis. I will then present three sites in greater detail - Alahan, Çatalhöyük and Pinarbaşı, to work through the potentials and pitfalls of constructing chronologies of grave types based on type series. While the graves at Alahan are Christian and the cemetery at Çatalhöyük included Roman, Christian and Islamic inhumation burials, the graves at Pinarbaşı are significantly different to contemporary eleventh century burials in the vicinity. This paper will discuss the problems associated with using medieval mortuary practices as markers for identity, and some of the issues inherent in attempting to relate the funerary assemblages to the complex identity politics of Middle Byzantine Anatolia.

### **Beyond the Sea: Early Medieval Burial Practices at the Site of Oymaağaç, Turkey**

**Kathryn E. Marklein** (The Ohio State University, Ohio), **Sherry C. Fox** (American School of Classical Studies at Athens, Athens)

The archaeological site at modern day Oymaağaç, Turkey, is purported to be the Hittite religious center of ancient Nerik. The höyük was continuously reclaimed as a burial ground for local populations at least as early as the Roman period and extending into the early Medieval period. The early Medieval cemetery landscape at Oymaağaç was marked primarily by single inhumation burial roof tile graves, oriented in the southwest-northeast direction. This tradition was practiced throughout Europe and the Middle East for several centuries, utilized specifically by this inland Northern Anatolian community between the seventh and ninth centuries AD. However, these early Medieval burials at Oymaağaç demonstrate a remarkable diversion from the Roman period graves at the site. Thus far, excavations have unearthed at least six multiple interment Roman period graves. A few of these graves demonstrate direct evidence of mass burial events, while the others

reflect multi-generational reuse. Theoretically, the cemetery at Oymağaç provides an invaluable case study for addressing mortuary transitions within this important territorial byway of the Anatolian Pontus.

### **Cultural Identities in Early Byzantine Period: The Bioarchaeological Evidence from Maroneia in Thrace (Greece)**

**Paraskevi Tritsaroli** (Greek Ministry of Culture and Sports, 26th EPCA, Athens)

Important geopolitical changes and major population movements into Europe including the Balkans marked the first centuries of Christianity. These phenomena had led to continuous interactions between groups with different cultural backgrounds and the creation of a much diversified population. Historical sources and archaeological evidence testify the cultural diversity of the Early Byzantine society in Greece. The skeletal analysis of the cemetery sample (37 individuals) from the ancient city of Maroneia in Thrace (5th – 6th c. AD) showed the presence of two individuals with headshaping, a practice which was not customary in Christian tradition and culture. Biocultural evidence supports the hypothesis that these individuals had a cultural background which was linked to the Huns; on the contrary, the disposal of the body and grave architecture show no variations between burials, indicating the assimilation of these individuals into the multicultural society of Maroneia. The combined analysis of historical, archaeological and skeletal data sheds more light on the social structures and complexity during Early Christian times.

### **Comparing Burial Customs in the 6-7th Century Eastern European Steppe and in the Early Avar Tisza-Körös-Maros Region. Problems and Potential**

**Tamara Hága** (Déri Museum, Debrecen)

The present paper examines the relationship of the so-called Sivašovka-type burials, and the burials of the population lived in the eastern part of the Tisza, specifically in the area between Körös, Tisza and Maros/Aranka rivers in the early Avar period. Burial customs (orientation, pit, position of the skeleton, sacrificial animal, food offerings, grave goods) of these two groups have a close connection with each other. Although this connection was recognized occasionally by numerous researchers, no synthetic study has been made on it. Hungarian research interpreted this latter Tisza region group as that eastern European population, which – according to written sources – joined the Avars only in the Pontus Region and after entered the Carpathian basin with them. The largest problem of this international research is that Russian-Ukrainian and Hungarian researchers ignored each other's results from time to time, which resulted significant discrepancies. In this paper my aim was to collect all the Sivašovka-type burials from the Eastern European steppe, and synthesize dating and burial customs, highlighting the similarities and differences. This can clarify the relationship of the Sivašovka-type burials and the early Avar burials of the eastern Tisza region, resulting important conclusions about the (funerary customs) of the early Avar society.

### **Challenges and Approaches in Analysing and Dating 12-13th Century Churchyard Cemeteries and Burials. The Case Study of the Cemetery of Kána Village**

**Mária Vargha** (Central European University, Budapest)

Kána village is an ideal case study, as according to the present knowledge it is the largest, or rather the most completely excavated, 12-13th century village in the Carpathian basin, excavated by György Terei between 2003 and 2005. In the framework of this project, the whole settlement was excavated: 200 houses, four large storage pits, large number of different archaeological features, and the church and the churchyard of the village, with nearly 1100 burials. Within the cemetery it was possible to separate eight different phases, which relies not on grave goods, but mainly in a more exact method: stratigraphy, as cemetery analysis was mainly based on superposition and orientation of the graves. This made possible to investigate the chronology of artefacts by the chronology of the cemetery, without using the traditional dating of the artefacts for dating each phase of the cemetery. The investigation of the chronology of the artefacts revealed not only chronological issues of dating the artefacts of the period, but it also exposed two important phenomena in burial customs; the lack of thirteenth-century artefacts in graves, and thus, the disappearance of thirteenth century graveyards, and the dating value of coins, which in most cases was not reliable.

### **Considering Plurality – Critical Realism and Early Medieval Mortuary Practice**

**Duncan Sayer** (University of Central Lancashire, Lancashire)

Individual graves are the product of multiple architects drawing on their own experiences to create a single event; they are the result of incomplete or open ended social negotiations. Early medieval cemeteries consisted of multiple graves and so they were a palimpsest of fluctuating ideas and interpretations based on personal, regional and chronological context. This paper will explore how the choices of funerary architects transformed between the fifth and seventh centuries AD. It will investigate patterns in archaeological data at a cemetery and regional scale to examine funerary decisions and social

plurality. Each burial was different and so archaeological categories like weapon graves or burial wealth are historically contingent; they changing significance across generations and between communities. However, this is not a weakness of archaeological data it is its strength allowing the exploration of multiple simultaneous cultural phenomenon locked into a process of continuous modification. This fluctuation and complexity was the result of decisions and difference, it defined relationships, spawned creativity and engineered circumstance because society is plurality.

### **Afterlife Topographies. Infant Burials in the Medieval Burial Landscape**

**Barbara Hausmair** (University of Konstanz, Konstanz)

Social structures and ontologies are established, reinforced but also challenged through exclusion and inclusion of humans and objects in the material environment. Especially in the Middle Ages the social and metaphysical order of the world got inscribed in the structuring and connotation of both profane and sacred spaces. The celestial kingdom was considered to lie just above the atmospheric sky, while volcanoes or caves represented entrances to hell. In the Christian worldview children who died without baptism were considered to be confined to limbo – a special place at the margins of hell. This paper scrutinizes the spatial structures of medieval infant burials in central Europe by analyzing parish cemeteries and separate burial places for presumably unbaptized infants. It will be argued that both intra-cemetery positions of infant graves as well as topographic locations of exclusive infant cemeteries (easily accessible and visible places; secluded and hidden locations; high or low altitude) possibly related to the lay population's ideas about world order, which was projected onto their environment. Thus spatial patterns can provide an insight into people's concepts about children's place in the afterlife and reveal strategies that aimed to influence the afterlife scenario proposed by the Church.

## **POSTERS**

### **Muslim Burial Practices on The Cis-Ural**

**Natalia Bryukhova** (Perm Scientific Centre, Perm)

The report focuses on the characteristics of the Muslim burial rites, recorded during the excavation of the archaeological complex of Rozhdestvensk. Rozhdestvensk archaeological complex is located on the bank of the river Obva, right tributary Kama near Rozhdestvensk village of Perm region, Cis-Ural. The complex includes Filippovskoye and Rozhdestvensk medieval settlement, the Muslim burial ground and a pagan cemetery. Muslim burial ground dating from the late 11th – the beginning of the 13th century. 26 burials committed by Muslim ceremony were examined in the course of excavations in 1990, 1991 and 2008. According to the mutual arrangement of the elements of the skeleton, the dead were buried in one rite - stretched on his right side, his head sent to the west, facing deployed to the south. The lack of things in tombs, as well meet the requirements of the Muslim burial ceremonies. A feature of this group is marked preponderance of male burials. This is probably due to the characteristics of the group left a cemetery - the Muslims involved in the life market town, located on the neighboring territory.

### **The Burials from the St. Rombout's Cemetery, Mechelen, Belgium**

**Katrien Van de Vijver** (Centre for Archaeological Sciences KU Leuven, Leuven)

Excavations on the St.Rombout's cemetery in Mechelen yielded 4,164 depositions in 3,575 graves dated to the 11th to 18th century AD. Medieval burials are usually considered against a Christian 'norm' of funerary deposition, namely single, primary, supine burial, with the head oriented west and without grave goods. Deviant burial is a term given to burials that deviate from the norm of that period and area, often taken to designate individuals whose cultural and social background or circumstances of death warrants special funerary treatment. They do not always indicate marginalized groups, even so-called normal burials show variation. Functionality, accidents, local traditions and personal preferences should not be forgotten. Both the medieval and post-medieval burials in the St.Rombout's cemetery show considerable variation in the presence or type of container, position, associated objects, multiple and collective burials or orientations. Besides there are also unusual burials demonstrating uncommon position, orientation, number of individuals or grave lining. Variations in burial characteristics are combined with skeletal analyses and historical evidence to interpret the biocultural context, not just for the deviant burials, but also for larger patterns of variation in burial context and treatment of the body, between periods and population groups.

### **Cremation Burial Rite in the Northwest Caucasus in the VIII-IX Centuries A.D.**

**Pavel Uspenskiy** (Institute of Archaeology, Russian Academy of Sciences, Moscow)

In the Middle Ages in the North Caucasus existed various forms of funeral rites. In VIII - IX centuries A.D., the population of the North-west Caucasus was common rite of cremation. Distribution area cemeteries with the rite of cremation is localized in the West Zakubanye (left bank of the Kuban River) and in the North-eastern Black Sea coast. In the VIII-IX centuries

A.D. cemetery with cremation burials are known both for active use in the population during the preceding period (VI-VII centuries A.D.), and there are new cemetery. Cremation burial known exclusively in ground burials. Uneven distribution of burials at the necropolis indicates the existence of geographically separate sites, which can be interpreted as a generic or family. Throughout the period, the dominant type of burial was a cremation without vessels, and the burning of the body took place on the side. Other types of burials are local: so cremation cists focused only in the North-eastern Black Sea coast and only one necropolis, predominantly localized in the same cemetery major percentage of cremations in the vessels. Population practicing the rite of cremation may be related to tribes Zikhs and Kasogs localizes in the North-West Caucasus according to the narrative sources.

### **Citizens Final Resting Place: A Late Medieval and Early Modern Age Urban Cemetery in Rijeka (West Croatia)**

**Andrej Janeš** (Croatian Conservation Institute, Zagreb)

During the middle Ages and the Early Modern period the citizens of Rijeka were interred in the area around the town parish church of the Assumption of the Blessed Virgin Mary, situated in the eastern part of the town. Archaeological excavations south and west of the church proved the existence of late medieval and early modern graves. On that occasion 152 in situ burials were excavated, including 2 walled tombs and 6 ossuaries. The 2 walled tombs can be attributed as family graves. South of the church wall a row of five ossuaries of medieval origin, where excavated, that could be dated to the late 15th century. On the southern edge of the graveyard a large ossuary was unearthed, which was used in the Early Modern period, from the late 17th century. The medieval horizon of the graveyard can be dated from the mid-13th to the end of the 16th century, dated by few grave finds (jewellery, belt buckles, dress accessories and coins). The walled tombs the graves south of the church can be ascribed to this horizon. The younger horizon can be dated from the end of the 16th till the end of the 18th century.

### **Children in Medieval Europe: A Study of Death and Burial**

**Bernadette Manifold** (Independent Researcher, Derby)

Childhood in medieval Europe could be a tumultuous time, with many children dying before they reached the first year of life. Those that did survive had to deal with poor nutrition and disease. The skeletal remains of children provide a wealth of information on their physical and social life, from growth and development to their diet. But the human skeleton also allows the study of cultural and economic factors which may have exposed them to trauma and disease during their lives. Despite nearly two decades of bioarchaeological research in Ireland, Britain and Europe, little attention has been placed upon the health of children in early and late medieval Ireland, Scotland and France. This is in complete contrast to the large amount of research conducted on archaeological remains from England. The primary aim of this presentation is to focus attention on a number of non-adult skeletal collections from Ireland, Scotland and France in order to investigate and compare a range of physiological stress indicators, disease and trauma types from early and late medieval populations.

### **Moving Beyond Ethnicity: Re-Assessing the Cemeteries of Early Medieval Peloponnese (Greece)**

**Nikos Tsivkis** (Institute of Mediterranean Studies, Crete)

Byzantine archaeology although counts more than a century of history is still a relatively young field in the systematic study of burial practices and the implementation of refined techniques of funerary archaeology. Peloponnese in south Greece holds some of the most historical excavations in Greece, like Olympia or Corinth and many more. Aim of the paper is to re-assess the published material from the excavation of Early Medieval cemeteries in the Peloponnese (AD 7th-9th c.), along with unpublished material from the cemetery of Messene in the SW Peloponnese. Traditionally the discussion of this material would be limited to questions of ethnicity connected with the appearance of newly arrived «barbarian» populations from the North, Slavs and Avars, and the ways they related to the pre-existing old Roman population of the Early Byzantine Empire. The re-evaluation of this material and the application of modern techniques offers to us new opportunities of understanding, moving beyond the search of ethnic groups into the social realities of a period still considered by many as «Dark Ages».



### **T06S014 - A NEW NEOLITHIC**

**Organizers: Stella Souvatzi** (Koç University, Istanbul), **Trevor Watkins** (University of Edinburgh, Edinburgh)

For too long, the Neolithic has been synonymous with the first farmers and, in Europe, debate about colonisation by farmers from the Near East versus indigenous acculturation. While we can all now agree that the Neolithic brought huge changes – whether demographic, social, economic or cultural – and that there was not a single prime mover, we all have different perspectives and priorities, because of the focus of our research, and because of the region within which our re-

search has been based. Therefore, we invite participants from across Europe and southwest Asia (and beyond) to identify from their perspective the key components of the Neolithisation process and their inter-relationships. Examples might be the new relationships between: farming practices, population growth and social practice; differences in social structure, and changes in cultural practice; or the creation of new notions of identity in place, landscape or architecture. In discussion we may seek to relate different components and the feedback loops that connect them to one another, building for ourselves a more realistic model of the complex processes that rapidly transformed the social, cultural, economic and physical landscape of whole continents.

## ORAL PRESENTATIONS

### What is a Neolithic Society?

**Julian Thomas** (Manchester University, Manchester)

While the adoption and dispersal of domesticated plants and animals was undoubtedly one of the key developments of the period, it may be a mistake to understand the Neolithic as simply synonymous with farming. The effect of such a perspective has generally been to relegate artefacts and architecture to a subsidiary status, as outcomes or consequences of agriculture. An alternative is to see the Neolithic as a mode of social organisation, which facilitated the use of domesticates without determining the form that that use should take. In this presentation I will suggest that Neolithic societies were structurally different from hunter-gatherer communities, in representing heterogeneous assemblages of humans and non-humans, in which animals and artefacts became integral to the social fabric. At the same time, social groups became durable holders of collective wealth. These arguments will be substantiated by reference to evidence drawn from the Neolithic of mainland Britain.

### The Way to a New Neolithic

**Trevor Watkins** (University of Edinburgh, Edinburgh)

Much Neolithic research has taken place within a narrow framework that (a) restricts the time-frame in southwest Asia to the last two millennia of the Palaeolithic and the early Neolithic itself, and (b) confines the process to modelling climate and natural environment, the potential domesticates, and the changes in subsistence strategies. We should take a broader view. We need to see these complex phenomena in a perspective of evolutionary time; and we need to take a holistic view of what was involved, thinking how the various components fit together. I argue that the Neolithic phenomenon represents a relatively recent, and absolutely pivotal role in the story of human evolution. Sociality has been a key feature of long-term human evolution; and developments in human sociality have been mediated by evolving cultural modes of communication, supported by technological innovations and investments in subsistence strategy. I also argue that a development of cultural niche construction theory offers us the evolutionary framework that will help us to understand where the Neolithic came from, why it spread so rapidly and readily and what a pivotal role it played in human history.

### Short Stories and Long Stories for the Mesolithic-Neolithic Transition

**Alasdair Whittle** (Cardiff University, Cardiff)

In this paper I want to reflect on experience over the last few years in thinking about the Mesolithic-Neolithic transition in Hungary, the LBK of central Europe, and in Britain and Ireland. I briefly note some of the key recent advances and/or changes, not least in chronological precision and aDNA analysis. I list a number of other approaches which we badly need to adopt or apply more widely. I go on to explore the kind of stories and narratives which we have been applying. While urging much greater chronological precision, now possible to the level of lifetimes and generations, I also advocate a longer view of transformation, in which perceived single moments of transition are not the only focus. Within that perspective, I put the general case for 'fusion' or 'integrationist' models.

### Paths towards a New World. The Earliest Neolithic in Southern Scandinavia

**Mats Larsson** (Linnaeus University, Småland)

Fundamental to my lecture is a concern with the ways in which communities in the Early Neolithic inhabit their landscape and thus shape their social and cultural identity in southern Scandinavia. If the Neolithic involved the introduction of new species of plants and animals and new forms of material culture into indigenous contexts, the longer-term consequences of this development should be gauged through changing practices of dwelling: patterns of occupation and mobility, the organisation of space (at a number of levels). Of great importance is the recognition that objects can be used to construct as well as reflect social identities, and that their deployment and deposition in different contexts represents a means by which social transformation is effected. These arguments are strengthened by recent perspectives that emphasise that material things are integral to society, rather than secondary to intersubjective relations (Latour 2005; Hodder 2012; Olsen et al. 2012).



## Homogenization towards Degeneration?

**Güneş Duru** (Istanbul University, Istanbul), **Mihriban Özbaşaran** (Istanbul University, Istanbul)

Hunter-gatherer groups in SW Asia sustained their existence around their camp areas and provided food for their nutritional needs without serious conflict between them, despite the fact that their paths must have crossed. These groups had special locations where they would come together during certain times of the year. Such sites not only relieved the pressure created by increased population density and eliminated the possibility of conflict, but they also facilitated social, technological and cognitive exchanges. Shortly after settled life, hundreds of permanent villages appeared. These groups stopped meeting at the collective gathering places but continued to be part of an ideological unity. As the subsistence economy became stronger and certain prestige objects emerged, the villages that controlled resources and the circulation dominated others. To sustain their existence, the peripheral villages in the region began gravitating towards the orbit of those that were ideologically, cognitively, technologically and economically dominant. In time, they started to lose their own character. 'Neolithic Revolution', which had previously led to the unification of groups and to innovations and improvements has now led to degeneration or collapse that was caused by homogenization. Opposing this model, the Neolithic groups elsewhere remained outside this sphere and avoided the collapse.

## Cradles, Bridges, Packages and the Social Processes of Neolithisation in the Eastern Mediterranean

**Stella Souvatzi** (Koç University, Istanbul)

The perception of the Neolithic as a neat package of discreet characteristics (e.g. agriculture, sedentism and architecture) disregards historical context and reveals deeply embedded concepts of a uniform, inevitable and single-directed evolutionary trajectory towards Neolithic 'achievement'. In addition, in the Eastern Mediterranean debate has recurrently revolved around questions about Neolithic cultural origins (i.e., indigenous or imported from further east) and identity of a European significance, given also the wider views of these regions as the 'cradles' of 'European civilisation' or as 'bridges' transmitting the Neolithic way of life to Europe. This paper argues that in order to understand the processes of 'Neolithisation' we need to move away from the essentialist understanding of the emergence and spread of the Neolithic and to focus, instead, on the contexts of many practices that take place in a given local, regional, temporal, or cultural setting. This view will be explored with a particular focus on Greece, whose Neolithic is clearly a complex, non-linear phenomenon, and through an examination of the different manifestations of early settlement and materiality, the multiple scales of space and time at which all this happened and the range of social relationships and identities that it involved.

## Identifying and Comparing Socio-Economic Trends in the Neolithic Eastern Mediterranean: A View from Cyprus and the Northern Levant

**Constantinos Constantinou** (University of East Anglia, Norwich)

This paper aims to examine communities of the late Neolithic of the Eastern Mediterranean through a new lens. By examining settlements, primarily of Cyprus and northern Levant (and to a lesser extent southern Levant), it aims to reconstruct social and economic organisation. Using comparative spatial analysis of aspects of the material culture indicating social and economic organisation, this study placed these two regions in juxtaposition highlighting three different degrees of Neolithic social and economic intensification ("full scale farming-based strategies"; "towards full-scale farming-based strategies"; and "non farming-based strategies"). This demonstrates that neither region developed homogeneously, and more importantly, that subsequent to the colonisation events affecting Cyprus (PPNB), the latter still displayed aspects of mainland Neolithic social and economic life-style. This suggests general similarities within the developmental trends of the organisation of social and economic life among societies inhabiting the Eastern Mediterranean basin. In effect, this study contributes to our improved understanding of the later prehistory of Cyprus and the northern Levant by examining long-term social change through the lens of social and economic behaviour, in turn challenging past narratives of island isolation.

## The Household and the Neolithic Revolution in the American Southwest: An Anasazi Case Study

**Richard Ciolek-Torello** (Statistical Research, Inc., San Diego)

In the American Southwest, the development of a sedentary agricultural society was a slow and gradual process. Maize was introduced as early as ca. 2,500 B.C., but was initially incorporated into the seasonal round of Archaic hunters and gatherers, who continued a communal life-style occupying small brush structures in temporary settlements. The Neolithic revolution did not occur until the first centuries A.D., when permanent settlements were first established. We use evidence from recent investigations in the southern Chuska Valley of northwestern New Mexico to investigate the relationship between agricultural intensification, permanent settlement, and the formation of households as the basic socio-economic unit. Focusing on the activities that households perform, we document their changing organization over the next 500 years, as the people of the Chuska Valley moved from subterranean pit houses to the archetypical "unit-style" pueblos. This pit



house to pueblo transition involved the development of the extended household, which comprised 6-8 individuals and was partitioned into gender-specific domestic activity areas. Finally, we argue that the development of the extended household as the fundamental residential, production, and land-holding unit in Anasazi society was more important to the Neolithic Revolution in the American Southwest than was agricultural intensification.

### **Habitation Patterns of the Neolithic Agricultural Villages in Eastern Thessaly (Greece) through Remote Sensing Applications**

**Apostolos Sarris** (FORTH – Foundation for Research & Technology - Hellas, Iraklio)

This paper presents the preliminary results of a multi-year geophysical and remote sensing fieldwork campaign to study the physical landscape and social dynamics of Neolithic settlements within the coastal hinterlands of eastern Thessaly (Greece), where a rich sequence of Neolithic culture is known most famously at sites such as as Sesklo and Dimini. Non-destructive, remote sensing applications have been applied to explore multiple settlements and extract new archaeological data on an extensive scale, providing a unique opportunity to analyze the broader characteristics of Neolithic habitation in Thessaly and the interactions between sites. In particular, we have had success in documenting the diachronic development of Neolithic sites from core habitation mounds ( $\leq 1$  hectare) to large, sprawling communities several hectares in size. We have also identified dozens of individual buildings at certain sites (one preserves more than 60), most of which are rectilinear two-room structures. However, a few structures are of considerable size and raise important questions on the social dynamics of these communities.

### **Brothers, Sisters, Neighbours – Dietary Differences between the Households of the Neolithic Site of Polgár-Csőszhalom (NE Hungary)**

**Péter Csippán** (Eötvös Loránd University, Budapest)

Polgár-Csőszhalom is a very complex, multiple occupation site. This special site dated to the 5th millennium BC is composed of two different topographic units: a tell settlement and a horizontal settlement. This paper is based on the preliminary results of the identification of animal bone finds from the horizontal settlement. The aim is to introduce a comparison of meat-eating patterns of several households in quite distinct areas of the settlement. The households as basic social and economic units may be interpreted by the place of dwelling and their closely connected features: pits, graves, post-holes etc. But households are also interpreted like groups, who eat together, eating systematically and logically, eating quality and quantity. Although the comparison of the meat-eating patterns seems easy, the method has two possible aspects: qualitative and quantitative. Reconciling the two is the most plausible method recommended for comparing the meat-eating customs of these Neolithic households. Through the mirror of animal remains we can demonstrate differences between the meat consumption habits of these prehistoric neighbourhoods.

### **More than One Neolithic? Probing the Contrast between Central and Western Anatolia**

**Maxime Bami** (University of Liverpool, Liverpool)

I propose to use some of the traditional markers of the Neolithic, as defined by Vere Gordon Childe (1936) and others, to characterise the Neolithic in two regions of Anatolia: food-production, settled village life, ground stone tools, pottery and weaving implements. Attention is drawn to the contrast between a developmental Neolithic in Central Anatolia, in which the various elements that make up the Neolithic appeared dissociated from each other over a period of two thousand years, and a fully-fledged, albeit later, Neolithic in Western Anatolia, where all the elements of the Neolithic pattern of existence emerged more or less concomitantly, as though they belonged to an incipient 'package'. The question is whether this regional contrast reflects an objective reality, for instance a two-stage neolithisation process involving long-term evolution in Central Anatolia and diffusion in Western Anatolia, or whether it results from insufficient or inadequate research strategies. This discussion also provides the opportunity to re-evaluate the relevance of selected criteria in defining the Neolithic phenomenon.

### **Neolithisation in Aegean Turkey**

**Özlem Çevik** (Trakya University, Edirne)

Until a few years ago one could not envisage that initial occupation of western Turkey goes back to the early 7th millennium BC. Nevertheless, the recent excavations in Ulucak Höyük indicate that the earliest occupation level at the site can safely be dated by more than ten C14 samples to the first half of the seventh millennium BC. This initial occupation did not provide pottery or any other clay objects while farming and herding were fully developed. Thus, this makes the situation at Knossos no longer an isolated case. Besides several indications of ritual practices in this early habitation, the conservative behaviours such as re-plastering of floors and constant renovation of redundant hearths and ovens in open spaces are peculiar aspects, and did not recur in the following ceramic phases. By taking spatial organisation, subsistence patterns and

exchange mechanisms into consideration, the main target of this paper is to open a niche to discuss the initial Neolithic in Aegean Turkey and its implications for further West. The internal differentiation before and after the mid-7th millennium BC at the site will also be assessed by comparing the surrounding regions.

### **Following the Footsteps of the Hunters in the Neolithisation Process of the Aegean**

**Burçin Erdoğan** (Trakya University, Edirne)

The recent excavations at Girmeler show that ninth millennium cal. BC Western Anatolia is characterized by sedentary communities engaging in intensive hunting. A structure with at least two layers of lime plastered floor, wattle and daub superstructures and floor furnishing points to a sedentary community at Girmeler. But it is currently unclear whether sedentism should be viewed as an extension of radiating mobility or as a generically distinct way of life. The Girmeler people mainly hunted caracals, and they have a characteristic chipped stone industry. The ninth millennium cal. BC of the Aegean is also characterised by semi-permanent settlements with seasonal fishing, hunting and gathering of snails. This paper will discuss the role of these early hunters in the Neolithisation Process of the Aegean?

### **Neolithic Revolution and Mesolithic Continuity in the Alps**

**Jadranka Verdonkschot** (Universidad de Alcalá, Henares)

Thanks to their exceptional preservation the archaeological record from the Neolithic in the Alps is exceptionally well represented by lake-dwelling sites. They permit us to assess the first indications of the Neolithic in this area from a new perspective. At many sites a Mesolithic continuity is clearly present alongside Neolithic innovations. In this paper a new way of investigating is promoted, integrating the material culture and ideas regarding revolution as opposed to continuity, assessing them as a whole, the one not excluding the other.

### **Neolithisation Processes in Southeast Europe from the Standpoint of Archeogenetics**

**Alexey G. Nikitin** (Grand Valley State University, Allendale, Michigan)

The arrival of the Neolithic in the western part of the forest-steppe zone in modern-day Ukraine was a result of economic, cultural and demographic influences from both the west and the east. The material culture as well as maternal genetic lineages of a regional group in the Podillyan Upland belonging to the Trypillian cultural complex (TCC) show the influence of the Neolithic central European and Balkan farmers. At the same time, one particular maternal genetic lineage shows up in TCC at higher frequency than in central European and Balkan farmers. Its frequency in TCC is comparable with that of Neolithic hunter-gatherers of the eastern part of the North Pontic region (NPR), who harboured no typical “farming” genetic markers, but displayed east Eurasian genetic influences, which they shared with the Mesolithic inhabitants of the Baltic region of northern Europe. While evidence of anthropological commonalities between Trypillian groups and the Neolithic NPR is emerging, it is well established between the latter and the north European Neolithic. Taken together, genetic and anthropological evidence reveal a complex demographic picture of the Neolithisation process on the territory of Ukraine.

### **The Neolithisation of the Asian Steppes**

**Victor Merz** (Pavlodar State University, Pavlodar)

The problem of the influence of south-west Asian cultures on the neolithisation of Europe is much discussed. There is no adequate scientific understanding of the process of neolithisation occurring to the North-East of the earliest centres of economic production. A considerable contribution to this understanding has been made by the results of research of some Neolithic sites in north-east Kazakhstan. The settlement Shydyrtay has yielded an industry similar to the Jeitun cultural complex to the south-east of the Caspian Sea. The pebble and flint sculptures represent anthropomorphic and zoomorphic images typical of south-west Asian cultures. This complex was apparently associated with the migration of a certain part of the population to the steppe zone. Who were these newcomers: were they pastoralists or agriculturalists? The Jeitun culture belonged to earliest plant and animal farmers. Some part of the Jeitun population may have specialized in animal husbandry and gradually spread out into the steppe zone. When representatives of the Jeitun culture reached the steppe zone of Kazakhstan, they may have reverted to hunting, while keeping their technical skills of stone knapping, as well as their accustomed images and cult concepts.

### **Different Faces of Neolithic: Neolithisation in Eastern Europe**

**Ekaterina Dolbunova** (The State Hermitage Museum, St. Petersburg), **Andrey Mazurkevich** (The State Hermitage Museum, St. Petersburg)

The conception of a “Neolithic revolution” introduced by Gordon Childe has determined this epoch for a long time as the time of the development of a productive economy. It was under the influence of this conception that the notion of the backwardness of the inhabitants of the forest zone of Eastern Europe was formed. For most of Eastern Europe pottery is

the only visible archaeological marker of the beginning of a Neolithic. Dates obtained in recent times show the ancient age of this first pottery (end of VIII – VII mil calBC). Pottery from the very beginning is supposed to occupy a unique (prestige) place in the culture of local population. The ways of its distribution on this territory about 2000 km length were, probably, connected with river system going in meridional direction, joined north and south. Moving to the north, bearers of southern Neolithic traditions in the search of unsettled ecological niches found themselves in the areas with favourable bioresources. They settled uninhabited ecological niches or adjoined with Mesolithic populations leaving only fragments of pottery as the evidences of their stay. These groups were not numerous and that is why hardly archaeologically seen. Further these ceramic traditions were conserved or developed in the milieu of local inhabitants.

### **A New Neolithic in the Southern Caucasus: The Appropriation of Space and Location in the Mil Steppe, Republic of Azerbaijan**

**Barbara Helwing** (Deutsche Archäologische Institut, Berlin)

Excavations and intensive landscape studies conducted by a joint German-Azerbaijani research team since 2009 in the Mil Steppe, Republic of Azerbaijan, have provided the first glimpses of complex human interaction within this landscape in the 6th millennium BCE. The region shows densely spaced Neolithic occupations that were probably of only short duration. Excavations in a series of sites show that in these various sites, different strategies were adopted to mark geographical locations by buildings and structures of large scale, like a henge system with in-built walls in site MPS 4, and a monumental platform in Kamiltepe. While this ongoing research has not yet come to a final conclusion as regards the function of these constructions, they were certainly a focus of community effort and interaction, increasing social cohesion and clearly demonstrating claims to inhabit this previously unsettled landscape. While earlier research into the Caucasian Neolithic has usually emphasized the role of migration from the south in the dispersal of the Neolithic way of life, we argue that the adoption of Neolithic life-ways here unfolds in a continuous interaction between various groups involved who supported their claims to this landscape by marking it with large-scale buildings that were the foci of their social life.

### **A Reassessment of the Stratigraphy of Tepecik-Çiftlik and Its Contribution to the Central Anatolian Neolithic** **Ceren Çilingir İpek** (Istanbul University, Istanbul), **Yasin Gökhan Çakan** (Istanbul University, Istanbul)

There is a chrono-cultural problem in the traditional terminology of Anatolian archaeology which is an open question for researchers dealing with the Neolithic and Early Chalcolithic periods. Recent studies in Central Anatolia have produced valuable data to illuminate this problem. Studies in Volcanic Cappadocia, of which the settlement of Tepecik-Çiftlik is a part, demonstrate the presence of a particular cultural zone during the Neolithic period in the region. Tepecik-Çiftlik has an uninterrupted sequence of stratigraphy from the Pre-pottery Neolithic to the end of the Early Chalcolithic period. The particular changes in architecture and pottery which can be detected in the Pottery Neolithic and Early Chalcolithic layers of the settlement give us a new perspective on the understanding of the above-mentioned chrono-cultural problem; hence new excavations and researches in the region should be made in order to further improve our knowledge. This paper aims to make a contribution to the definition of the Neolithic cultures of Volcanic Cappadocia by reconsidering the stratigraphy of Tepecik-Çiftlik.

### **Transition from Late Mesolithic to Early Neolithic: Case Study at Zamostje 2 (Central Russia)**

**Vladimir Lozovski** (Institute for the History of Material Culture, St Petersburg)

The analysis of late Mesolithic and early Neolithic complexes from the peat-bog site Zamostje 2 in Central Russia shows direct relations between them that can be traced in all aspects of the material culture: in bone and flint inventory, in style of art items and decoration on the bone tools. The new elements which appeared in the early Neolithic layers are not so numerous, but they are of a critical character for the material culture of traditional society. In the stone inventory we can point to the appearance of bifacial, leaf-shaped arrow-heads made by flat parallel retouch, and the appearance of the bifacial technique itself. In the bone inventory two new types of missile weapons were added to the traditional complex: these are figure-shaped arrow-heads and barbed points or harpoon-heads with small barbs. Another new type that appeared in the early Neolithic layer is a group of fishhooks made from one bone blade. Among the slotted tools a new category of “sickles” appeared in the early Neolithic complex. This category is completely unknown in the Volga-Oka region in general. However, the group of slotted tools from the early Neolithic layer is not so numerous as in the Mesolithic.

### **Technological Changes in the Starčevo Culture of the Central Balkans**

**Selena Vitezović** (Archaeological Institute, Belgrade)

The earliest Neolithic cultures brought significant changes in southeast Europe – domesticated plant and animal species, new forms of material culture, innovations in settlement patterns and architecture. Completely new forms of economy and material culture (domesticated animals, pottery) have attracted most attention from researchers, while less attention

has been paid to the changes among the already existing aspects of material culture. This paper will attempt to note the innovations in the Starčevo culture through the changes in technology, with special focus on the industry from osseous raw materials (bone, antler, teeth, mollusc shells). The comparison of the bone industries from the Mesolithic Iron Gates and Starčevo culture reveal similarities, especially in manufacture from antler. The Starčevo bone industry introduced some new techniques and new types or variants of tools, which, in turn, give information on new aspects of everyday activities, the importance of certain crafts, and also on changes in cultural attitude towards raw materials (related to their origin and/or final products and their tasks). Especially characteristic techno-types are those made from cattle metapodials, most notably carefully made and long-used spatula-spoons. Also, osseous materials are no longer used for artistic expressions, but they remain the dominant raw material for personal ornaments.

### **Images, Objects and Social Identity during the Neolithic of North Mesopotamia: a Long-term View (c. 10500- 5500)**

**Çiğdem Atakuman** (Middle East Technical University, Ankara)

During the Early Neolithic of the Near East (c. 10500-7000), a major transformation in ideas about the past, place, personhood and community was initiated through a manipulation of the symbolic world, which was expressed by diverse and elaborate strategies of building construction, burial practice, figurine making and food consumption. However, during the Later Neolithic (c. 7000-5500), the earlier focus on architecture and burial disappeared and portable media, such as ceramics and stamp seals, began to signal the agency of new symbolic technologies in the construction of communities. By focusing on the use of style and iconography in different media of the 7th and 6th millennium BC, such as ceramics, stone bowls, stamp seals and figurines, this study attempts to understand the discourse of new symbolic technologies in a wider context of settlement, burial and subsistence practices. My aim is twofold: firstly, to reveal the continuities and discontinuities in the construction of social identity from the Early Neolithic; secondly, to comment critically on the use of diffusionist arguments to explain the almost simultaneous appearance of these new material practices in Western Anatolia and the Balkans.

### **Bone or Flesh: Possible Defleshed Individuals from the PPNA Site of Körtik Tepe (Southeast Anatolia)**

**Yılmaz S. Erdal** (Hacettepe University, Ankara)

There is great variation in burial customs within the Neolithic period. This includes post-depositional treatments such as secondary burials, skull removal and skull plastering. In post-depositional treatments decomposition of the corpses becomes prominent. This study examines an Anatolian settlement, Körtik Tepe, that dated to the PPNA, and considers the post-depositional treatment of bodies, specifically, defleshing. A total 743 graves excavated from Körtik Tepe. 255 individuals could be analyzed of which 10 show cutmarks on their skulls; four of them also showed cutmarks on postcranial bones. Altogether, more than 400 cutmarks were observed. All are similar to peri-mortem signs of defleshing. The cutmarks are not related to cutting the hard bones, but rather to the removal of decaying flesh from the bones. If death is considered as a process of decaying, defleshing might be performed to hasten this liminal period. The completion of decomposition, which is part of the post-depositional practice, can be interpreted as the separation between life and death; good and bad. Uniformity of skull cutmarks suggests that the treatment was developed as a part of high-profile public ceremonies.

### **New Data on Mortuary Practices from the Early Neolithic Site of Tepecik-Çiftlik, Central Anatolia**

**Ali Metin Büyükkarakaya** (Hacettepe University, Ankara)

In this study, we examine mortuary practices of people at Tepecik-Çiftlik, where excavations have been conducted for more than ten years. The site is located in Volcanic Cappadocia, a sub-region of Central Anatolia. The settlement was occupied during the entire Neolithic Period (8th-7th millennium BC). The burials examined here are primary and secondary burials originating from layers 5, 4 and 3 of the settlement, and consist of 109 graves and the BB collective burial. The analysis of the mortuary practices indicates that there is a temporal continuity such as skull removal, reburial of skulls, and other secondary treatments of the burials. In contrast, in the same layers, there is a general temporal shift from collective burial to individual burials, and variability in terms of burial location (intramural, or courtyard/open areas). Continuity in the forms of treatments of the deceased can be interpreted as both historical and contemporary relationships between these people and other Pre-Pottery Neolithic communities in the Near East. On the other hand, temporal changes observed in the mortuary practices suggest a decreasing emphasis on collective ties between and within households, and imply the growing prominence of individual household economies.

### **The Place of the Encounter: Human-Animal Relationship in the Ritual Landscape of Göbekli Tepe**

**Gesualdo Busacca** (University of Catania, Catania)

This paper is focused on the human conceptualization of nature and human-animal relationships during the agricultural transition in southwest Asia. Due to its elaborate animal iconography and well preserved ritual landscape, the site of Gö-

bekli Tepe is been the natural context for such research. However, the study of the cognitive aspects of prehistoric contexts raises several methodological issues. Most of them seek the reconstruction of prehistoric beliefs and rituality through the archaeological evidence. Moreover, as a number of scholars have emphasized, there is a risk of using Western-centred categories in the study of radically different cultural traditions. The present analysis of human-animal relationships in the world-view and ritual practices of the community of Göbekli Tepe is based on two sets of data: first, a wide anthropological literature on several aspects, including human-animal relationships in correlation with subsistence strategy and the anthropology of art and monumentality; second, on a close study of the spatial organization and ritual usage of the monumental enclosures, also based on ethnographical and archaeological comparison. In the light of these observations, it seems possible to hypothesize an alternative picture of human-animal relationships at Göbekli Tepe, based on reciprocity and ritual endeavours of encounter, rather than fear and hostility.

### **The Role of Materiality in the Creation of Ritual Space and Its Implications for Identity Construction in Upper Mesopotamia and Central Anatolia**

**Erica Hughes** (Koç University, Istanbul)

The conspicuous placement of objects both inside and outside of structures often served to delineate the sacral from the quotidian. The changing context and contents of these depositions, especially those with the human form as their symbolic referent, informs a discussion of the relationships between ritual and identity in the earliest Neolithic. The deployment of the human image and its regional idiosyncrasies highlight the underlying issues of belief, embodiment and ritual. These depositions varied both regionally and over time with respect to elaboration, location, fragmentation and number. Through an examination of the evidence of specially-deposited human figures – as pillars, carved, shaped or in figurine form, as well as the patterned deposition of human bone - I hope to show how identity, materiality, place, space and ritual were entangled.

### **Small Finds from Ritual Contexts at Domuztepe-Kahramanmaraş**

**Deniz Erdem** (Middle East Technical University, Ankara), **Çiğdem Atakuman** (Middle East Technical University, Ankara)

This study examines the spatial distribution of small finds within a Late Neolithic ritual context at the site of Domuztepe-Kahramanmaraş (c. 6500-5500). This ritual context is composed of three interrelated components, namely the Death Pit, the Ditch and the Burnt Structure, all of which were found located in relation to a specially prepared space made up of compacted red earth, which is called the Red Terrace. The small finds that were recovered from these contexts during the excavations included items such as stamp seals, stone vessels, obsidian objects, shells, beads, small axes, spindle whorls, bone tools and such. Distribution of these items has been examined through correspondence analysis, which aims to demonstrate the relationship between the object groups and the spatial contexts and to understand the nature of the rituals that took place at Domuztepe, so that the significance of ritual can be evaluated in context of the social organization of the time period.

## **POSTERS**

### **Neolithic Longhouse Phenomenon. Origins, Meanings, Inhabitants and Successors**

**Jaromír Beneš** (University of South Bohemia, České Budějovice)

Almost seventy years have passed since the first archaeological discovery of the Neolithic longhouse in Europe. The meaning of this phenomenon as the context of the common social unit was studied by Bohumil Soudský in the 1960s in his original research on the Neolithic site of Bylany, Czech Republic, and Elsloo in the Netherlands. Another turning point in research was Ian Hodder's investigation of the Neolithic *domus* and its role in changing Neolithic society. The investigation of this phenomenon was based on a combination of field archaeological studies of the house-plan itself and related features in combination with ethnographic research. Archaeological investigation today is influenced by new paradigmatic look on humans in the Neolithic period, their biological affinities to indigenous people and role of the related artefactual inventory, including animals and the archaeobotanical remains. The poster is focused on contrasting outlines of the Mesolithic and Neolithic self-representations of prehistoric humans in Europe, their habitat units, variability in longhouse architecture and its meaning as ritualised space. Some suitable analogies with the ethnographic record are suggested.

### **The Possibility of the Neolithic Distinguishing in the Forest Kama Region**

**Evgenia Lychagina** (Perm State Humanitarian Pedagogical University, Perm)

The "Neolithic package" in the forest belt of Eastern Europe includes the emergence of pottery, new ways of stone processing, large square dwellings of earth-house type, the transition to settled life through the development of intensive fishing and hunting, a changing world without going to a food producing economy. Is it possible to have major social changes with-



out changes in the producing economy? The poster analyzes the Late Mesolithic and Neolithic of the Kama region. The author concluded that at this time there were big economic and social changes. Effective adaptation to the natural conditions of the Atlantic climatic optimum period promoted the formation of a strong sedentism (the appearance of large dwellings of earth-house-type), population growth (increase in area sites and artifacts), and a change in the worldview (appearance of tribal sanctuaries). These changes indicate a transition to the Neolithic through an intensive appropriating economy, without the appearance of elements of the productive economy. Thus, we believe that it is appropriate to distinguish the Neolithic in the forest belt although it is without a food-producing economy. Qualitative changes that occurred in the Late Mesolithic-Early Neolithic led to the formation of new social relations, comparable to those that characterize the Neolithic forest steppe and those steppe regions that have elements of a food-producing economy.

### **Rakushechny Yar: The Northern-Most Point of the Near Eastern Neolithic Package?**

**Andrey Mazurkevich** (The State Hermitage Museum, St.-Petersburg), **Yolaine Maigrot** (MAE-Paris 1 -Trajetoire, Paris), **Ekaterina Dolbunova** (The State Hermitage Museum, St.-Petersburg), **Vladimir Lozovski** (Institute of the history of material culture, Moscow)

Rakushechny Yar, situated on the lower Don, is a unique site with well-preserved cultural remains from the 7<sup>th</sup>-1<sup>st</sup> millennium calBC in 4 m stratigraphy of 23 cultural layers. Excavations were conducted in the 1960-1970s. Only a small part of low layers dated to 7th millennium calBC was uncovered, with the remains of adobe constructions, shell piles, and fire-places. This was an ancient shore, periodically drowned in early epochs by the Don River. A well-developed ceramic complex, original bone industry and flint industries of this site have analogies in the materials of Near East and Caucasus. The keeping of domesticated animals (sheep and, later, pig and cattle) was attested here, alongside an actively practiced fishing tradition (with numerous bones of cat-fish), the use of *Unio* shells, and hunting (deer, boar). Analysis of the archaeological suggests that it was a specialized site whose economy was based on the use of water resources. The route of the dissemination of the Near Eastern Neolithic package to Eastern Europe could have relied on the Caucasus, where early Neolithic sites are known. Also the eastern shore of North Sea might be suggested as a possible route where now drowned sites were situated.

### **A Lengyel Culture Settlement in the Kiarov District of Central Slovakia**

**Noémi Pažinová** (Archaeological Institute of the Slovak Academy of Sciences, Nitra)

Three Lengyel settlements were identified in 2013 in the Kiarov district of central Slovakia. Settlement-related objects were observed at four locations, the first three of which were in sight of one another, while the fourth was located peripherally. These locations were not inhabited simultaneously; there were time differences as is evident in the material culture. The objective is to present the settlement structure, variable features and a selection of material culture.

### **Neolithic Dwelling Structure as a Chronological Marker**

**Irina Khrustaleva** (St Petersburg State University, St Petersburg)

The transition from Mesolithic to Neolithic in the Forest Zone of the East European Plain was not accompanied by farming and animal husbandry, so the main attributes of Early Neolithic here are ceramics and some new types of flint tools. The long-term sites discovered on the Western Dvina contain a lot of non-contemporaneous artefacts (ceramic and flint) and remains of different constructions. One of the main goals of my research was to correlate the findings with constructions and to reveal the relative chronology of these complexes. Two types of dwellings were detected for the earliest period of these sites: roundish and rectangular pillar-structured constructions. I learned that there were no ceramics in the roundish dwellings, but in the rectangular structures there was Early Neolithic pottery. The roundish structures were earlier than the transgression at 7300 BP, when their remains were flooded. So it allows us to conclude that the roundish dwellings were of the Mesolithic age, and to distinguish the transition stage from round to rectangular constructions in the Early Neolithic.



## **T06S015 - BRINGING DOWN THE IRON CURTAIN: PARADIGMATIC CHANGES IN RESEARCH ON THE BRONZE AGE IN CENTRAL AND EASTERN EUROPE?**

**Organizers:** **Anthony Harding** (University of Exeter, Exeter), **Laura Dietrich** (German Archaeological Institute, Berlin), **Oliver Dietrich** (German Archaeological Institute, Berlin), **Viktória Kiss** (Hungarian Academy of Sciences, Budapest), **Klara Šabatová** (Masaryk University, Brno)

It has been a quarter of a century since the fall of communism in Central and Eastern Europe and the opening to the West. With this process archaeology saw a large influx of new projects and ideas. Bilateral contacts, Europe-wide circula-

tion of scholars and access to research literature has fuelled transformations of long-standing paradigms. The aim of the session is to explore the dimensions and depths of these changes regarding research on the Bronze Age, a period which for a long time saw conservative approaches with an emphasis on cultural-chronological studies. We invite contributions which investigate these changes of perspective. Key questions could include: -paradigms for understanding the Bronze Age (traditional schools of thought vs. changing research agendas), -regional studies vs. grand narratives, world systems versus local systems, -new approaches to cultural mobility: the movement of people (e.g. genetics, stable isotopes), the movement of goods (e.g. provenancing of metal and other materials), -understanding Bronze Age society (e.g. hierarchisation, cultural identities), -engendering the Bronze Age, -an archaeology of religion? -the impact of landscape archaeology (e.g. GIS-studies, large-scale systematic surveys), -changing excavation methods (microarchaeology, large-scale excavations), -the impact of scientific dating methods (e.g. 14C, Bayesian statistics), -significant discoveries (systematic research, preventive archaeology).

## ORAL PRESENTATIONS

### **“Europe without Walls”: New Vistas of Bronze Age Research in Hungary**

**Gabriella Kulcsár** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest), **Viktória Kiss** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest)

Hungarian Bronze Age research has dramatically changed in the last 25 years. After the demolition of the political borders, relationships of scholars were transformed as well, particularly in the last decade. New scientific networks were built not only in Hungary, but across Europe, and the broad spectrum of scientific and statistical methods brought “revolutionary” transformation and gave new perspectives on prehistoric research. Our paper aims to present the multidisciplinary analysis of Middle Bronze Age tell and non-tell settlements, complex bioarchaeological study of Early and Middle Bronze Age burials and recent research of metal finds including component and microstructure analyses. The structure, spatial and temporal dynamics of networks in the 3rd and 2nd Millennium BC Carpathian Basin can be examined with the help of our ongoing research projects. The traditional typo-chronological method completed by absolute chronological, bioarchaeological and other multidisciplinary research helps to refine our knowledge in connection with social development, large-scale interaction zones and the acting of cultural networks. We hope that the fusion of these projects will contribute to various aspects of present day international research programs.

### **Almost Bringing Down the Iron Curtain: Studying the Bronze Age in Eastern Romania**

**Neculai Bolohan** (Alexandru Ioan Cuza University of Iași, Iași)

Annus mirabilis of the European opening, 1989, has maintained many of the older ways of approaching the topic yet the hesitating beginning towards other ways of understanding the Bronze Age. The present contribution aims to achieve a stage analysis of the manner in which a region of Europe, still at the Eastern borders of the continent, went through the hardship of modernizing the archeological discourse. Based on a statistical representation of the contributions concerning the period in question I will attempt to identify the research paradigms and the specific questions. What and how much is left of from the historic cultural approaches, which are the forms of representing the “new order”, how were taken and filtered the different models of approach? Last but not least I will attempt an investigation of interdisciplinary approaches that could revive the archeological discourse. Although, this programmatic concept appears with various occasions, this attempt to integrate different methods and data science is a difficult threshold to cross. Mental, behavioral, institutional, financial... In any case, the absence of coherent regional programs, the absence or the refusal of the methodological foundation and the ineffective theoretical confrontations still underline the research of the Bronze Age in the area of study.

### **Change or No Change? Archaeology of the Middle and Late Bronze Age in Moravia**

**Klara Šabatová** (Masaryk University, Brno)

With our basis in an overview of the Middle and Late Bronze Age, we intend to discuss new developments in archaeology in Moravia over the last quarter century. Large-scale rescue excavations together with new technological approaches have uncovered archaeological evidence previously unknown or misinterpreted within the grand narratives of cultures. A long undiscovered settlement of the Tumulus culture or some types of burials. Generally of course, the cultural-chronological approach prevails. It's not really possible to talk of an overall paradigm shift, more about an organic integration of elements of the processual paradigm into the processes and interpretations.

## **Methodological Changes and New Approaches to the Research of the Bronze Age in Bohemia since 1990**

**Luboš Jiráň** (Institute of Archaeology of the Academy of Sciences of the Czech Republic, Prague), **Ondřej Chvojka** (Faculty of Philosophy of the University of South Bohemia, České Budějovice), **Tereza Šálková** (Faculty of Philosophy of the University of South Bohemia, České Budějovice)

The fall of the “Iron curtain” brought a lot of important changes in Czech archaeology, which are seen also in approaches to the research of the Bronze Age. These changes are results of new possibilities of free application of various theoretical approaches, as well as of former inaccessible research methods. The aim of our paper is to present the qualitative shift of our knowledge, which were reached since 1989 thanks to these new possibilities. Instead of the systematic excavation began the rescue surveys – lot of them brought very important informations, but only few excavations were published (e.g. Velim – Skalka). Likewise they were realised a lot of projects, aimed to the Bronze-Age research. In the last years are intensively applied a non-destructive approaches, like geophysical research, aerial-survey, airborne-laserscanning etc. Another phenomenon are prospections by metal-detectors, which are unfortunately applied by amateurs. Thanks to cooperation with some of them they were rescued and documented a lot of new hoards and another metal objects. In the last years began also a very intensive cooperation with Nature-Sciences, like Archaeobotany, Archaeozoology, Anthropology etc. Every year increase the number of radiocarbon dates to the Bronze-Age. The newest information about Bronze-Age in Bohemia are published in a modern synthesis (Jiráň et al. 2013).

## **Fault Lines Revisited – Some Thoughts on the Interpretation of Bronze Age Tell Settlement in the Carpathian Basin**

**Tobias L. Kienlin** (Institute for Pre- and Protohistory, University of Cologne, Cologne)

Recent modelling of the ‘chiefly courts of the tell cultures’ in the Carpathian Basin has seen a revival of diffusionism. Grand narratives on the dependency of European BA societies on the Mediterranean and/or convergence of both areas return. This falls short of recent interaction studies, which show a more complex picture of ‘core’ and ‘periphery’ relations than just dependency and subordination. In a metaphorical sense, then, the notion of a ‘fault line’ may remind us, that the elegance of historical narratives alone does not adequately support claims to historical ‘truth’. Long-term stability of structural difference between coexisting groups clearly is a possibility. We have to leave behind essentialising concepts of ‘core’ and ‘periphery’, and allow for variability and historicity of potentially interacting local groups – both in the Mediterranean and ‘Barbarian’ Europe. To this end local trajectories are compared with emphasis on the social use of space. It is shown that both regions expose cultural complexity, but it was only in the Mediterranean that this translates into explicitly politically stratified societies. Since none of these did prevail – the decline of the corridor houses or the fall of Mycenaean Greece – the Aegean may be characterised by a cyclical pattern contrasting the more continuous development of tell communities in the Carpathian Basin.

## **From Typo Chronology to Postprocessualism – Regional Settlement Research in the Northern Part of the Carpathian Basin**

**Klára P. Fischl** (Miskolc University, Miskolc), **Tamás Pusztai** (Herman Ottó Museum, Miskolc)

The professional career of the authors of this paper ran parallel with the process designated in the calling for this session. We got a very good, but traditional education from the great generation of Hungarian archeologists. After our years at the University the Hungarian archeology underwent a big transformation, including the motorway excavations. Through these large scale field projects new excavation methods and technical development were elaborated and we faced with new theoretical questions. The task to look for new answers to these questions transformed our minds. We present this process through a most recent micro regional Bronze Age research project in north-east Hungary, named BORBAS: Borsod Region Bronze Age Settlements. We would like to show, how we got from traditional settlement archaeology and classical typo-chronological processing of the Bronze Age archeological material of Ároktő-Dongóhalom through GIS applications, and geoarchaeological approach, to social and cognitive aspects of Middle Bronze Age population. Working on the basis of new ideas, we have built a project in cooperation with the University of Cologne and make this work affecting new generations of archaeology students at the University of Miskolc.

## **Predicaments of Chronology-Oriented Archaeology: The Example of Barice–Gređani Group**

**Hrvoje Kalafatić** (Institute of Archaeology, Zagreb)

This presentation examines the way in which chronology oriented paradigms in archaeology have influenced disciplinary ideas of ‘cultural mobility’, ‘continuity’ and ‘culture’ in Bronze Age societies in the southern Carpathian Basin. In this region, for the last 50 years, the chronological model of Bronze age cultures has been based on a three-part logic (early, classical, late). Confronting constraints of this predetermined chronological model, this paper begins by tracing how the definition of the last stage of Vinkovci-Somogvar Culture has been created to fulfill rather than to challenge the existing model. As with the previous cultural-chronological logic the appearance of Barice-Gređani group has been treated as

separated and independent cultural phenomena of Bronze Age in the Sava River Basin. Challenging the predicaments of traditional chronology this paper will reexamine the Barice-Gređani group in larger context and distinguish it from chronological frames of the Vinkovci-Somogyvár Culture on the basis of large scale excavations, systematic research and radiocarbon dating of recent finds.

### **The Pit Grave/Yamnaya Culture in the Space of Changing Paradigms**

**Dmytro Teslenko** (Taras Shevchenko Kiev National University, Kiev)

During the last hundred years the internal purport of the concept Pit Grave (rus. Yamnaya) culture was specified and elaborated. One of the most important causes for the transformation of the concept is the paradigmatic changes. Soviet archeology has evolved in isolation for a long time. Innovations in the theory of archaeology on the West were mostly unknown in the USSR. The strange symbiosis of traditional cultural-historical, formational and structural approaches determined the direct comparison of burials with Early Bronze age ethnic groups. As a result, the archaeological cultures transformed into a cultural-historical communities. The main consequence of the curtain's fall was the disappearance of mandatory using of the formational approach. Unfortunately the achievements of western theoretical archaeology were not mostly accepted by the archaeologists in the post-soviet countries. On the other hand intensively developing scientific contacts and international projects extending the possibilities of researches on the Early Bronze age, especially in the field of laboratory and experimental studies. As a result the image of scientific research has changed. Archaeologists focus their attention on single sites rather than on thousands of burial. So the main approach in the post-soviet archaeology of Early Bronze age is microarchaeological.

### **Material Interconnections among the Early Bronze Age Communities in the Central Carpathian Basin. Assessing Material Complexity within and across the "Border" of an Archaeological Culture**

**Csaba Bodnár** (Eötvös Loránd University, Institute of Archaeological Sciences, Budapest)

Interconnections noticed in the material culture of Bronze Age communities in the Carpathian Basin have been described and explained in Hungarian research commonly by the concept of archaeological cultures. Although this widely applied notion has been comprehensively reviewed by scholars living on the other side of the Iron Curtain, their critique has had little effect on the theoretical and methodological discourse of Hungarian BA research. My paper, by focusing on EBA communities living in the middle part of today's Hungary, aims to address the applicability of this concept as a potentially useful and adequate analytical tool for describing broader spatial patterns in the archaeological record. The comparative analysis of the material assemblages of settlements and cemeteries generally associated with the term Nagyrév culture and situated along the rivers Tisza and Danube, shows a much higher degree of variability in material culture both on an inter- and intra-site scale than was previously supposed. This paper attempts to isolate patterns in the archaeological data by investigating the spatial distribution, relative frequency and multivariate statistical coherences of different pottery, metal and other artifact types. In order to reveal the real complexity of material interconnectedness among these EBA societies, I am going to apply an approach based on network theory.

### **Anamorphosis in Archaeology. Aspects of Phenomenology and Perception in Cultural Change and Cultural Transfer. A Case Study of the Pit-Grave Kurgans of the Eastern Carpathian Basin**

**Tibor-Tamás Daróczi** (Institute of Archaeology and Art History of the Romanian Academy, Cluj-Napoca)

The paper discusses the mechanism of cultural change through phenomenology, applied to groups of material culture of the Late Copper Age II and Early Bronze Age I of the Eastern Carpathian Basin. The construct applies the concepts and relations of noema and noesis, from the individual cultural change, to the interactions of individuals within a group, but also between two or more groups. Through this analysis, aspects of cultural change and transfer might be portrayed in a way that links the individual cultural change to anthropogenic material culture. Two or more groups of human individuals create different goods but interaction does not end at this stage. Through the transmission of ideas and objects, and their implicit agency, they influence each other. This means, that aspects of cultural change and transfer are reflected in the entanglement of goods of different origins. More importantly, if interpreted from the proposed view, might transcend the limits of the usual attributions of so-called prehistoric groups, i.e. archaeological cultures, enabling the delimitation of past identities and interactions. In the final step, the identities defined based on the phenomenological interpretation of cultural change and transfer will be outlined and the "contact zones" of the groups discussed.

### **Bronze Age Defensive Armour in Eastern Europe: Analyses and Archaeological Studies**

**Marianne Mödlinger** (University of Vienna, Department of Prehistoric and Historical Archaeology, Vienna)

Most studies on Bronze Age defensive armour in Eastern Europe were carried out over 20 years ago, and even the latest publications on defensive armour tended to focus on typology and the analysis of distribution patterns. Only on a small

number of objects the alloy composition and thermomechanical treatment has been studied. Consequently, many fundamental aspects of manufacture, use and functionality of defensive armour have not been comprehensively investigated. The presentation will focus on the processes of manufacture of helmets, greaves and cuirasses. By analysing their material properties, shape and manufacture we will gain further insights into the capability of the armour to withstand impact during combat. Surface analyses in order to detect traces of manufacture and usage, alloy composition, microstructure and corrosion types of the armour are discussed. The armour was studied using portable XRF, SEM-EDXS-EBSD and microstructure analyses. Non-invasive analyses as PGAA, PIXE and ToF-ND were carried out on the Hungarian defensive armour. Microstructure and composition depending on time period, object type and geographical area will be discussed as well as the manufacturing techniques used to produce the armour.

### **The Mobile Archer: An Innovation in Warfare in the Late Bronze Age of the North Pontic Regions**

**Laura Dietrich** (German Archaeological Institute, Berlin)

The archaeology of Bronze Age warfare constitutes an important research field in the last years. Not only the warriors' identities and their weapons, but also battle fields and battle tactics moved into the focus of research. In the Late Bronze Age of the north Pontic regions and the Eastern Carpathian Basin warfare was studied until now through the analysis of metal weapons deposited in the numerous hoards. Battle axes and swords, spears and daggers shaped the image of pedestrian warriors and only to a certain extent dynamic battle tactics. Settlement research however proves that this image is rather due to the unequal interpretation of archaeological contexts. The present paper aims to show this by analysing the projectile points of the Late Bronze Age Noua-Sabatinovka-Coslogeni cultural complex. They are produced mostly of bone and appear together with horse gear in large numbers in settlements, far less in hoards or graves. Metrical analysis points at their improved efficiency in comparison to earlier projectile points of flint; several groups with different grades of efficiency can be distinguished. More mobile battle tactics, which may imply also the invention of new forms of lighter bows, seem to become visible behind this find group.

### **The Late Bronze Age Ritual Site of Lăpuș, Northwest Romania**

**Carola Metzner-Nebelsick** (Ludwig-Maximilians-University Munich, Munich), **Louis D. Nebelsick** (Cardinal Stefan Wyszyński University, Warsaw), **Carol Kacsó** (Museum Baia Mare, Baia Mare), **Ken Massy** (Ludwig-Maximilians-University Munich, Munich)

The Late Bronze Ritual site of Lăpuș in Northwest Romania has long been known as a tumulus necropolis. In an international excavation project between the LMU Munich/Germany, the Muzeul Județean Maramureș in Baia Mare /Romania and the Kardynal Stefan Wyszyński University Warsaw/Poland one of the barrows of Lăpuș has revealed a new type of monument. It can best be described as a multi-phased large feasting hall with adjacent features such as stone pavements leading towards the building. A rich spectrum of intentionally destroyed pottery and artefacts of other object categories as well as charred food remains and calcinated bones indicate the function of a feasting hall. After their use the buildings were deliberately destroyed by fire and subsequently covered by a large mound. Intensive geomagnetic prospect ions have shown that the completely excavated barrow 26 is not a unique feature in Lăpuș. Since there is evidence of burial mounds from previous excavations, a funeral context of the feasting hall excavated within this international and multidisciplinary project can be assumed.

### **Invisible Objects and Technologies. The Impact of Selective Deposition in the Formation of Bronze Age Metalwork Assemblages of the Carpathian Basin**

**Oliver Dietrich** (German Archaeological Institute, Berlin)

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



## Reexamining Human Mobility during the Hungarian Bronze Age: Preliminary Isotope Results from the Bakota Project

**Julia I. Giblin** (Quinnipiac University, Connecticut), **Paul R. Duffy** (University of Toronto, Toronto), **László Paja** (Hungarian National Museum, Budapest), **Györgyi Páldi** (Hungarian National Museum, Budapest)

Archaeologists' ability to measure migration has vastly improved in recent years. This has meant that the role of migration in shaping European Bronze Age culture is being reexamined. This paper will present the research design and preliminary isotope results from a multidisciplinary project focused on a Middle Bronze Age cemetery, Békés Jégvermi-kert, in southeastern Hungary. Members of the Bronze Age Körös Off-Tell Archaeology Project (BAKOTA) are integrating data from archaeology and biological anthropology using multiple techniques (ceramic analysis, radiocarbon dating, aDNA, isotope analysis, GIS, and remote sensing) to give us an opportunity to examine the relationships between the people buried in these cemeteries, their relative statuses, and their identity as locals or the newly arrived. This new approach will let us better understand the movement of people and grave goods, and allow us to evaluate the importance of mobility in cultural processes through time.

## The Hajdúsámson Treasure – Revisited

**János Dani** (Déri-Museum Debrecen, Debrecen), **Ernst Pernicka** (University Heidelberg Curt-Engelhorn Center for Archaeometry, Heidelberg), **Gábor Márkus** (Déri-Museum Debrecen, Debrecen)

The Hajdúsámson Bronze treasure – which is one among the most emblematic finds of the European Bronze Age – has always been at the focus of the research. Despite the fact that so many scholars have studied the famous sword and the 12 axes, some basic questions remain unanswered. This paper tries to answer some of these questions using new methods and approaches. The Hajdúsámson treasure tells different stories on different levels. The 1st one is a local stage connected to the findspot and its surroundings. The 2nd, regional level means the cultural, settlement and social network behind the deposition. The 3rd level is a global approach: a „grand narrative” which is intensively researched from northern Europe to the Aegean thanks to generations of archaeologists from V.Gordon Childe and Nils Åberg up to the present... But on this level we can demonstrate another exact network reconstructed on the ground of the source of raw materials (copper, tin).

## The Joint British-Romania Project “The Ancient Salt Production in Transylvania”

**Anthony Harding** (Exeter University, Exeter), **Valerii Kavruk** (National Museum of the Eastern Carpathians Sfântu Gheorghe, Sfântu Gheorghe)

One of the major topics of European archaeology is ancient salt production. While in Central and Western Europe much relevant research concerning this topic has happened, in Transylvania, one of the richest saliferous provinces of the continent, before 2000 very little was known about ancient salt production. At the end of 1990s a joint British-Romanian team (Durham and Exeter Universities, British Academy, The Museum of Eastern Carpathians, The Bistrița County Museum, The Bucharest University) began systematic interdisciplinary exploration of salt archaeology in Transylvania. The academic results of this project have greatly exceeded the most optimistic expectations. Moreover, this research uncovered thousands of timbers which allow – for the first time in southeastern Europe – the building up of a dendrochronological framework. Romanian archaeologists (scholars, museographers and students) involved in this project had a good chance to learn modern methods of research and management of sites. Moreover, the participation within this project was a good occasion for them to reconsider their approach to archaeology. The Museum of Eastern Carpathians, which is a small museum in a small town (Sfântu Gheorghe) has gained the richest collection of wooden artifacts in the whole of Eastern Europe, and a reputation as a leader in salt archaeology in the whole of the Carpathian Basin.

## The Sax Project – The Changed World of Tell Archaeology

**Magdolna Vicze** (Matrica Museum Százhalombatta, Százhalombatta), **Marie Louise Stig Sørensen** (University of Cambridge, Cambridge), **Joanna Sofaer** (University of Southampton, Southampton)

The field of archaeology was fundamentally affected by the fall of the Iron Curtain in 1990. Two particular aspects were strongly impacted. One was field archaeology due to the boom of large-scale construction work. An unplanned side effect was the near extinction of research excavation. The other aspect involved access to theoretical and interdisciplinary approaches, methods, and literature that had not previously, or only to a limited degree, been available. Prior to 1990, prevailing scientific paradigms in Hungarian archaeology were deeply embedded in culture-historical modes of understanding and explaining prehistory. There was a tendency to use simple, predictive models in interpretations of social organisation. In recent years this has been expanded to accommodate more broadly based concerns about how prehistoric societies organised themselves and to instigate investigations of variations within social organisation. The international Százhalom-

batta Archaeological Project (SAX) is an example of this changed intellectual climate. A range of scientific techniques and methods have been introduced to enable detailed excavation and analysis of how the tell worked. In this process it is, however, easy to recognise only the new developments and to ignore the longer-term experience of tell excavation. In this paper, we shall present the SAX project in terms of this dynamic between innovations and tradition.

### **Results from Renewed Research in Vatin**

**Dragan Jovanović** (City Museum Vršac, Vršac)

Research of Felix Milleker in Vatin at the end of the 19th century and the beginning of the 20th, actually represented rescue work caused by extraction of sand and devastation of the Bronze Age settlement and necropolis at the wider area of the village Vatin. It is probably due to Milleker himself that the site of Vatin is – in contemporary scientific literature – considered completely devastated. The situation in the field and the lack of precise data regarding the eponymous site of Vatin culture, gave us impetus to begin new research in 2010. Considering the circumstances, the greatest attention has been devoted to non-invasive research methods of the site itself and its surrounding area. Systematic survey, aerial photography, Digital Elevation Models in addition to small-scale excavations gave us the opportunity to better understand the site and its catchment. Results achieved so far completely transform the known picture of the site. Work on defining the size of the settlement, as well as detection of yet unknown enclosures close to the site bring new insights into the relationship of the prehistoric communities on regional and more local levels.

### **Turning Ages – On the Problem of Continuity/Discontinuity of Early and Middle Bronze Age Civilizations**

**Jozef Bátora** (Archaeological Institute of the Slovak Academy of Sciences, Nitra), **Peter Tóth** (Department of Archaeology of the Faculty of Arts of the Comenius University, Bratislava)

The problem of transformation of Early Bronze Age civilization into the tumulus cultures has long been studied mainly from a typological-chronological perspective. But recent approaches using GIS shed new light on this topic. With their help we are able to process large amounts of information, and for wide areas of Slovakia we can observe changes in settlement patterns. Based on these results and together with traditional data sources, such as material culture, settlements and burial grounds we are detecting high mobility, changes in burial rite and abandonment/destruction of fortified settlements as a result of deep transformations of society. In the Early Bronze Age the cultures reached high levels of complexity. Social elites settling in fortified settlements administrated everyday life. Differences between social classes became very large and there were high tensions between them. Such a weakened society was vulnerable to external influences. As archaeology and natural sciences show, in the mid-15th century their impact culminated resulting in transformation of Early Bronze Age civilization.

### **The Investigation of Prehistoric Occupation Layers – An Integral Part of Archaeological Excavation or an Unreasonable Luxury?**

**Michal Ernée** (Academy of Sciences of the Czech Republic, Institute of Archaeology, Prague)

The importance of the study of prehistoric and early medieval occupation layers and the irreplaceable nature of the information they hold can be documented by numerous examples, including wetland regions. The occurrence of relics of occupation layers cannot be ruled out *a priori* at any prehistoric or early medieval lowland settlement in continental Europe. Nevertheless, the significance of their excavation has been undervalued for many decades. Today it is clear that these occupation layers hold a large amount of information that cannot be found elsewhere. The failure to investigate and gain an understanding of them amounts to a distortion of archaeological sources. Acquired information remains a mere fraction of the knowledge that could be collected by excavation, and a great deal of crucial information is thus ignored. This situation can lead, in a large number of cases, to entirely erroneous interpretations of both individual sites and entire settlement structures, or even separate archaeological cultures – a fact that can be documented in many concrete examples from Bohemia. It is evident that not only the theoretical and methodological approaches relating to the excavated finds and their collection but also the excavation methods themselves were influenced by paradigms.

### **Concluding Discussion**

**Anthony Harding** (University of Exeter, Exeter)

The concluding discussion will focus on general themes which arise from the papers presented. What new directions has Bronze Age research in central and eastern Europe taken since 1991? What good things from the previous decades have survived and what bad things have been eliminated? How have opportunities for exciting new research and young researchers been promoted? How has the research landscape changed?

## POSTERS

### **Finds of the Wietenberg Culture along Pianu Valley (Alba County, Romania)**

**Mădălina Voicu** (National History Museum of Romania, Bucharest)

This poster refers to the distribution and organization of the Middle Bronze Age Wietenberg type habitation along the Pianu Valley (a tributary of the Mureş River). One of the earliest identified sites of the Wietenberg culture in this area is the necropolis from Sibişeni – Deasupra Satului (comm. Vinţu de Jos), excavated in 1962 and later the related settlement, which has been located in the close vicinity. Since then, a series of prehistoric discoveries, preponderantly of Wietenberg type have been identified on this terrace as well as along the above-mentioned valley. Furthermore, the excavations were resumed in 1994 and continued up to 1998, providing more information about the archaeological situation. The preventive archaeological research campaign in 2012 led to the increasing of the list of sites containing Wietenberg type vestiges, namely the ones from Pianu de Jos – Lunca Pârâului (dwellings, graves, other traces of anthropogenic activities) and Pianu de Jos – Podei (pits containing Wietenberg type pottery). The accurate mapping of all (older and more recent) Wietenberg finds will be very useful in detecting patterns in the distribution of material culture over the micro-region represented by the Pianu Valley.

### **The Development of Bronze Age Food Processing in Hungary: A Lithic Perspective**

**Annamaria Priskin** (University of Pécs, Pécs)

Research on Bronze Age society and economy in Hungary has received increasing attention since the 1990s. The investigation of subsistence economy, however, consisted almost entirely of archaeobotanical and archaeozoological studies, usually without systematic sampling. Changes came in the second half of the 90s with investigations carried out within the framework of international cooperative research projects focusing mostly on the Middle Bronze Age. A new perspective in the research on Bronze Age subsistence economy is provided by the study of stone implements used in various phases of food production, but especially for grinding, from various aspects. Such work has already started to some degree regarding the Middle Bronze Age in the above-mentioned projects. The aim of my poster is to present such a work on subsistence economy and food processing based on the preliminary investigation of ground stone tools found at a Late Bronze Age fortified centre at Csanádpalota in SE Hungary. The results of this research will provide crucial new data and will contribute to the reconstruction of the organization of subsistence economy and food production, one of the most significant aspects of the economic life of the given community.

### **Research of Late Bronze Age and Early Iron Age Hill Forts in Tribeč Mountains in Western Carpathians, W Slovakia**

**Susanne Stegmann-Rajtár** (Archaeological Institute, Slovak Academy of Sciences, Nitra), **Petra Kmeťová** (Department of Archaeology, Faculty of Arts, Comenius University, Bratislava)

The paper presents new approaches to research of the Late Bronze Age and the Early Iron Age hill forts in West Slovakia. Recent trends focusing on character and organization of cultural landscape are used in research of hill forts in Tribeč Mountains and their surroundings (Zobor, Žibrica, Veľký Lysec, Veľký Tribeč, Šiance, Tábor). Concentration of these hill forts in a rather small area is highlighted by its location in a contact zone between Middle-Danubian Urnfield/Hallstatt and Lusatian cultures and communities with equestrian-nomadic character (Mezőcsát and Vekerzug cultures). Sites situated in this boundary region were of mixed character that is reflected in their material culture. With the help of GIS-analyses, especially of spatial distribution of the sites and their relations to natural environment, intensity of settlement processes in each of the cultural complexes is defined more precisely, chronologically from the Late Bronze Age to the Early Iron Age. Also organization of cultural landscape in the contact areas is closely examined. Furthermore, possible hierarchy of the hill forts and surrounding settlements and cemeteries is pointed out and their mutual influences and relations are defined. This work was supported by the Slovak Research and Development Agency under the contracts No. APVV-0736-11 and APVV-0598-10.

### **Changing Populations or Changing Identities in the Bronze Age of the Carpathian Basin? Migrations and/or Transformations during the 3rd and 2nd Millennium BC**

**Viktória Kiss** (Hungarian Academy of Sciences, Budapest), **Zsolt Bernert** (Hungarian Natural History Museum, Budapest), **János Dani** (Déry Múzeum, Debrecen), **Klára P. Fischl** (University of Miskolc, Miskolc), **Julia I. Giblin** (Quinnipiac University, Connecticut), **Tamás Hajdu** (University Eötvös Loránd Budapest, Budapest), **Kitti Köhler** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest), **Gabriella Kulcsár** (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, Budapest), **Géza Szabó** (Wosinsky Mór Museum, Szekszárd), **Ildikó Szathmári** (Hungarian National Museum, Budapest), **Vajk Szeverényi** (Hungarian Academy of Sciences, Budapest)

The transformation of settlement patterns (e.g. the abandonment of tell-settlements) and funerary practices (e.g. appearance of tumulus burials) during the Bronze Age in the Carpathian Basin are generally explained by migrations and the

settlement of new population groups. Following the start of palaeoenvironmental studies in Hungary during the 1990s, the probable impact of the changes of the climate and vegetation of the region, as well as the possible socio-economic transformations in their wake were considered as potential factors stimulating changes in settlement patterns. Social, religious and political arguments have also been proposed for explaining the widespread distribution of ceramic styles or vessel types (such as bell beakers) and funerary rites across vast territories of Europe. The possibility of migrations between 2500 and 1500 BC is suggested by a small amount of Bronze Age stable isotope analyses, and in view of the later, early medieval history of the Carpathian Basin. Our poster presents the combined methodology with the application of <sup>14</sup>C dating, bioarchaeological and geochemical analyses, that will provide a proper dating and lend a hand for understanding of typo-chronological alterations, and for the reconstruction of prehistoric identities.

### **New Data about the Late Bronze Age on the Middle Mures Valley. The Site Aurel Vlaicu - Obreza (Hunedoara County)**

**Corina Bors** (National History Museum of Romania, Bucharest), **Luciana Irimuş** (National History Museum of Romania, Bucharest), **Vlad Rumega** (National History Museum of Romania, Bucharest)

The future motorway A1 is developed along the 4th pan-European transportation corridor, from southern Transylvania from West to East (along the middle Mureş valley) crossing the Carpathians via Sibiu towards Bucharest. The preventive archaeological research campaign 2012 on the newly discovered site Aurel Vlaicu – Obreza were occasioned by the construction works of this motorway. The site is located about 0.5km south to the National Road no. 7. The preventive archaeological investigations took place in summer 2012. Throughout an open area archaeological excavation it was fully investigated an area of about 1ha, where 133 archaeological complexes were identified and excavated. From a functional point of view these were semi-sunken dwellings, refuse pits and extraction pits etc. The pottery is very fragmentary, except five vessels broken in situ. Other finds consisted of bronze objects, bone tools (including incised cattle shoulder plates) and fragmentary lithic objects used for metal processing. Among the ceramic finds are to be mentioned a series of fragments specific for the pottery of the Noua culture, as well as fragments of black polished grooved/fluted pottery – characteristic for the early Hallstatt period (possible Gáva culture, the early phase).

### **A New Bronze Age Site on the Middle Mureş Valley: Pianu de Jos – Lunca Pârâului**

**Ionuţ Bocan** (National History Museum of Romania, Bucharest), **Mădălina Voicu** (National History Museum of Romania, Bucharest)

A detailed survey, along with large scale rescue excavations took place along the future A1 motorway, from Orăştie to Sebeş, in the southern part of Transylvania (Romania). In this framework, in 2012, a new Bronze Age site was excavated at Pianu de Jos – Lunca Pârâului (Alba county, Romania). Preventive archaeological works carried out here in spring-summer 2012 have uncovered traces of habitation from Late Aeneolithic / Early Bronze Age (the so-called Coţofeni culture), as well as vestiges of a Middle Bronze Age habitat (the so-called Wietenberg culture), comprising two surface dwellings and 20 graves (both inhumation and cremation burials), along with other traces of anthropogenic activities (such as: exterior hearths, pits containing pottery, animal bones, flint and bronze objects, assemblages of river rocks structured as platforms). One has to outline the variety of pottery, both for shapes and decoration. Bearing in mind the fact that for the Wietenberg sites in Transylvania there are only few stratigraphic data, the observations made in this regard will provide new aspects. This paper will also offer new information regarding the site's landscape, especially concerning the funerary features which seem to be in connection with other similar ones made in the close vicinity.

### **Micro-Stratigraphic Analyses of Middle Bronze Age Cremation Urns at Békés Jégvermi-Kert, Hungary**

**László Paja** (Hungarian National Museum, Budapest), **Julia I. Giblin** (Quinnipiac University, Connecticut), **Györgyi Parditka** (Hungarian National Museum, Budapest), **Paul R. Duffy** (University of Toronto, Toronto)

Cremations, as scattered ash deposits and contents in cremation urns, are common burial practices in the Carpathian Basin's Bronze Age. Although cremated human remains—as a consequence of the incompleteness and fragmentation of skeletons—provide less information about the individuals' characteristics (e.g. sex, age at death, metric and pathological conditions), the data obtainable through systematic analyses can still help us to reconstruct past populations and practices. Our paper focuses on the bioarchaeological results of the partly excavated Middle Bronze Age (2000-1500 BC) cemetery of Békés Jégvermi-kert in Eastern Hungary. During our examinations, we carried out layer-by-layer micro-stratigraphic excavation of intact and mostly intact cremation urns, recovering bones with the support of CT images. Bony fragments were analyzed using classical biological anthropological methods. We present the characteristics and spatial distribution of bony fragments according to anatomical regions to reconstruct mortuary practices at the site.



## T06S016 - SACRED NATURE: SITE BIOGRAPHIES, RESEARCH, ETHICS

**Organizers:** Ester Oras (University of Cambridge, Cambridge), Tõnno Jonuks (Estonian Literary Museum, Tartu), Martti Veldi (University of Leiden, Leiden), Tiina Äikäs (University of Oulu, Oulu), Marte Spangen (Stockholm University, Stockholm)

Throughout history natural and manmade spaces have been used as religious sites in various contexts. Some of these sites have been (re)used in different religious, cultural and political frameworks, both in the past and today, while others show a very short-term utilization period. This session aims at discussing the use of sacred places and their biographies in both contemporary and past societies. The specific questions of interest include defining, using, studying and protecting sacred places. What makes a place sacred? To what extent is the sacredness of a place related to natural topographical features or created through use and reuse of the site? What is the perception of natural sacred places in contemporary and past society, and how do these perceptions change in time? What kind of sources and methods can be employed for studying sacred places? How can we approach the dynamics of sacred sites through archaeological material? Are there specific ethical issues that should be considered in the studies of sacred places? We welcome both theoretical and methodological contributions throughout the world.

### ORAL PRESENTATIONS

#### Sacred Place as a Trigger: Asclepius Healing Centers from the Perspective of Cognitive Archaeology

**Tomas Glomb** (Department for the Study of Religions, Faculty of Arts, Masaryk University, Brno)

Cognitive archaeology provides a theoretical and methodological framework through which it is possible to grasp the study of sacred places in a whole new way. In particular, the term „extended cognition“ will be tested in this study as a new analytical tool for studying the interaction between the place and the human mind. Researchers behind the idea of extended cognition claim that the specific environment and specific way of acting in it shape the cognitive processes. From this perspective, this study will examine the role of Asclepius healing centers in consolidating the memory of the visitors attending the incubation ritual. The hypothesis is that upon arrival to the Asclepius healing center the place triggered a process in the mind of the visitor leading to emotional arousal. Results from neurobiological experiments suggest that emotional arousal in combination with the subsequent sleep in the ancient healing center could lead to a vivid memory of the event.

#### Look at the Shape of that Shadow, Feel the Shadow of that Shape: A Reflection on the Earliest Steps in the Human Consecration of Nature Based on Northern Spanish Prehistoric Record

**Javier Ordoño** (University of the Basque Country, Leioa, Biscay)

The paper explores the way in which our eldest ancestors consecrated nature, from the earliest diffuse evidence of not only physical, but also mental apprehension of landscape, to the appearance of the first well-known sacred architectures in southwestern Europe during the Neolithic. The reflection deals with very heterogeneous data mainly recovered from the Cantabrian Region (North of Spain) and nearby areas, where geographical features like mountains, valleys, rivers, cavities or even the sea seem to have a crucial role in this specific sphere of human behaviour. Symbolism and space, human being and environment, both interactive sides are analysed and discussed with the help of previous literature and, when necessary, through spatial analytical tools (e. g. GIS). Even though being aware of the narrow visibility of past hunter-gatherer symbolism, the work may confirm the suspicion that the existence of “sacredscapes” was a fact at least from the arrival of Anatomically Modern Human to Europe.

#### The Spirituality of Early Northern Foragers: Did Early Hunter-Gatherers Have Sacred Sites?

**Charlotte Damm** (UiT The Arctic University of Norway, Tromsø)

Hunter-gatherers are often argued to possess a particularly close relationship to their natural environment. This has been extended also to their ritual and religious practices. Scarre contrasts the enculturated natural features of the foragers with the built shrines of the farmers, and Jordan has devoted a book to sacred places in the forager landscape. However, this presentation will argue that certainly for northern Scandinavia there is little evidence for the existence of actual sacred places in early prehistory. While a number of major rock art locations (Alta, Nämforsen, Vyg), demonstrate repeated use over centuries or even millennia and while nearly all sites are located at the shore, there is great diversity in topography. Most of the sites are also directly associated with habitation, and bear none of the characteristics associated with sacred sites amongst recent foragers. Instead of interpreting these sites as sacred due to any particular topographical feature and prolonged use, it is argued that these northern forager societies must be perceived as involved in ritual practices linked to a spirituality disconnected from sacred sites. Through this the paper will discuss the definition of early sacred sites.



## **Sacred Wetlands? Neolithic Bog Offerings – A Case from Denmark**

**Almut Schülke** (University of Oslo, Museum of Cultural History, Oslo)

In Neolithic Southern Scandinavia bogs and lakes were used as places for deposition of objects, usually interpreted as bog-offerings. The wetlands chosen for the deposition of objects encompass very different settings, from easily delimitable ponds to extensive wetland areas. Pottery vessels with food, stone-tools and other objects have been found both as single finds but also in huge concentrations marking certain places as special. Most of the depositions took place in the Early Neolithic. My talk will discuss these sites from a landscape archaeological perspective, focusing on the Lille Åmose bog in Northwestern Zealand and its surroundings. The numerous bog-finds from Lille Åmose, most of them revealed through peat-cutting under Second World War, make this place a special archaeological site that could be called a “sacred” area. However, dealing with the Neolithic period, the notion “sacred” is not that easily to apply. The possibilities and limits of using this term will be explored by discussing the special natural quality of the wetlands, the meaning and the context of the finds. A look at the wider natural and cultural landscape setting will contribute to a better understanding of the use of the site contributing to a general discussion on “sacred nature”.

## **Is It Possible that Prehistoric Flint Mines Were Places of Worship? An Analysis of Pictograms in “Krzemionki” (Poland)**

**Maciej Grzelczyk** (Cardinal Stefan Wyszyński University Warsaw, Institute of Archaeology, Warsaw), **Michał Jakubczak** (Cardinal Stefan Wyszyński University Warsaw, Institute of Archaeology, Warsaw)

The year 1922 marks the discovery of one of the biggest prehistoric mining fields – “Krzemionki”. The mine has been used from the Neolithic to the Bronze Age. The deepest shafts are connected to TBR and GAC Culture. The question we would like to pose is whether it’s possible to consider Krzemionki somewhat of a prehistoric temple. In the late 1930s, Stefan Krukowski discovered an underground, 2-meter high chamber containing pictographs, pottery and mysterious relief, on the premises of “Krzemionki”. We would like to strengthen this reasoning with a new argument. An analysis of the pictograms left on the mine’s walls by the prehistoric miners confirms the earlier assumptions about the mine’s status as a temple. Many pictograms have been found representing bulls, fish and what can be assumed to be human figures. Other images are mostly very mysterious. In our opinion the visual representations from the mine’s walls can serve as proof of the mine’s status as a place of worship. Our paper will introduce our analysis of the pictograms. We will also ponder whether the shamanistic concept, which is one of the main interpretations of Paleolithic cave paintings, can be applied to the selected flint mines.

## **Göbekli Tepe – Centre of a Ritual Landscape in the Early Neolithic of Upper Mesopotamia?**

**Klaus Schmidt** † (German Archaeological Institute, Orient Department, Berlin)

The Pre-Pottery Neolithic site of Göbekli Tepe was not a settlement: characteristic forms of domestic hunter-gatherer architecture – e.g. as attested at other early Holocene sites in Upper Mesopotamia – are lacking entirely. Indeed, and in stark contrast to domestic settlements, the monumental enclosures and megalithic T-shaped pillars (stylized representations of anthropomorphic beings) point to the special symbolic (sacred) significance of this site. Göbekli Tepe is located on top of a huge limestone ridge which dominates the landscape northeast of the springs of Şanlıurfa. Intriguingly, a site contemporaneous with Göbekli Tepe, located in close proximity to these springs and now all but lost due to building activities in the late 20th Century, has also produced evidence for installations of non-domestic function. Further, there is the unexplored site of Karahan in the Tektek mountains east of Şanlıurfa, which again was more likely a religious/ritual site than a domestic settlement; finally, the same is also true for the small site of Sefer Tepe in the Viransehir district. This paper will investigate whether these locations were originally components of a larger, extended ritual landscape which incorporated sites dedicated solely to ceremonial purposes.

## **The Delineation of Ritual Space in the Earliest Neolithic of Upper Mesopotamia**

**Erica Hughes** (Research Center for Anatolian Civilizations, Koç University, Istanbul)

Ritual spaces, while often interchangeable with mundane locations, are delineated at certain intervals by practices which serve to identify and separate the sacral from the quotidian. One such practice that is visible in the archaeological record is the patterned deposition of objects or groups of objects both inside and outside of structures. The examination of the changing context and contents of these types of depositions informs a discussion of the creation of ritual space, as well as providing a valid method to pursue the study of sacred space. This discussion will briefly outline and employ a new methodology to approach prehistoric ritual, and present the results of an intensive study of the use of ritual deposition in demarcating types of spaces in Upper Mesopotamian sites. Relationships between the location, orientation, material and fragmentation of these deposits show how the entanglement of materiality and ritual space changed over time.

## Creating Sacred Space in the Neolithic Near East

**Estelle Orrelle** (University of East London, London)

This paper proposes that in the Neolithic of the Near East many supposed settlements can be seen as serving primarily as centers of ritual activity. I suggest that the main ritual practiced in these centers was that of sacrifice, a practice which established a new social contract dividing the kill between hunter, ritual specialist and a divine recipient.. The intensified symbolic behaviour noted in aggregation sites of the Near East appears to represent the deposited remains of sacrificed human and animal victims and inanimate objects. This constitutes symbolic capital transforming such centers into manmade sacred space. These sacred sites established permanent points in the landscape attracting sacrificial donations, legitimizing a cornering of resources. The deposited remains of superimposed sacrificial rituals formed a bulk, prominent in the landscape, a loud, costly signal of ritual power. The dynamics of these sacred sites their success or failure would leave a record of varying sizes and remains displaying handicaps, signaling difference and prestige. This alternative interpretation grants primacy to the control of ritual power and provides an explanation for the creation of sacred sites and the establishment of hierarchical religion.

## An Archaeology of Performance in Outdoor Spaces. Constructing Religious Dimension during the Middle Bronze Age

**Nicola Laneri** (University of Catania, Catania), **Dalila Maria Alberghina** (Catania University, Catania)

For ancient societies, public performances acted as a way of constructing a sense of community among the participants. Religious performances are the most recognizable ones in the archaeological record. Thus, for the archaeologists, it's fundamental to combine the analysis of the material remains of religious performances with an interpretation of the sensorial experiences the audience might have had during them at specific sacred locales (i.e., outdoor spaces, sacred landscapes, etc.). In particular, visibility and access are pivotal elements to strengthen the religious value of the locale. In fact, these are constructed through the enactment of processions as well as the performance of rituals within it that transform them into real places where community shares religious experience and develops its identity. In this paper, we will use this theoretical tenet to interpret the use of outdoor spaces as an example of locales of public performances in which the religious dimension is constructed. In particular, we will consider two examples from the Middle Bronze Age period (2000-1600 BC) in Syro-anatolia (the urban center of Ebla in western Syria and the small-sized centre of Hirbemerdon Tepe in the Upper Tigris valley) to test the value of an archaeology of performance in outdoor spaces.

## Memory and Ritual in Mardin: Mounds as Part of a Ritual Landscape and a Place for Building Collective Memory

**Güner Coşkunsu** (Mardin Artuklu University, Mardin)

Archaeological and ethnographical data show that ritual, cult, topography, landscape and geography can be intertwined. Mounds are one of the most common locations for such ritual practices. While previous studies have investigated contemporary ritual practices in different landscapes, there has been a dearth of research integrating or synthesizing past and contemporary ritual practices on or around archaeological mounds. Mardin offers an opportunity to delve into this subject because there are many instances of sacred places on top of natural and archaeological mounds. Aims:1) to present the results of a survey of the ritual places that are located on/around natural and humanly made mounds in Mardin 2) to review the nature of the relationship between landscape, ritual, and cultural-ethnic-religious identity 3) to explore relations between specific past and contemporary ritual activities in terms of their religion, form, and identity in a particular sacred location 4) to understand how ritual gatherings in such sacred places contribute into the collective memory 5) to discuss the impact of urbanization and urban transformation on ritual cultural heritage and how local people respond by creating new sacred places in a new environment 6) to underline how both nature and environment benefit from the presence of sacred landscapes.

## Dual Sacredness. Histories of Archaeology and the Creation of Sacred Space in the Sanctuary of Poseidon on Kalaureia, Greece

**Ingrid Berg** (Stockholm University, Stockholm)

Ancient sanctuaries in Greece are characterized by a dual sense of sacredness. On the one hand they are material remains reminiscent of cultic activity in the past; on the other hand they occupy the role of precious archaeological site in the eyes of the heritage sector. Materials from Classical Greece are appropriated as objects and places of veneration and worship, both in nationalist Greek discourses and in Western imagination. This phenomenon cannot be fully understood without analyzing how history of archaeology has produced narratives around the exceptionality of the Greek past. In this paper, I will discuss how archaeological practices create space and define it as archaeological through a case study from my work in the Sanctuary of Poseidon on Kalaureia, Greece. The site was first excavated in the late 19th century and re-excavated in the past couple of decades by Swedish archaeologists. Through a biography of the site, I will argue that the archaeology at

Kalaureia has created a space with selected material manifestations of certain pasts which serve to highlight the duality of sacredness discussed above. While some pasts are worshipped, others are left for dead.

### **Natural Behind Human-Made – Relations between Stone Structures and Natural Formations in Bronze Age and Iron Age Finland**

**Jarkko Saipio** (University of Helsinki, Helsinki)

Prominent natural formations, such as rocks of extraordinary shape, were among the most important sacred places of the last fisher-hunter-gatherers in the area of Finland, the historical Sami of northernmost Finland. However, the possible prehistoric significance of sacred natural places in other areas of Finland has traditionally been bypassed, due to the methodological problem of detecting prehistoric ritual activities in locations containing no human-made features. The ritual archaeology of Iron Age and Bronze Age Finland is currently limited almost exclusively to human-made structures, especially stone cairns. Bronze Age and Iron Age cairns are typically interpreted in terms of land ownership and domestication of landscape, and thus assumed to be unrelated to sacred natural sites. However, a closer look at the exact locations of the prehistoric stone cairns of Finland reveals that natural bedrock features and other natural stone formations were an important concern for the builders of the cairns. Furthermore, excavations have revealed that some of the cairns containing traces of prehistoric ritual activities are in fact slightly modified geological formations. This paper examines possible methods of detecting and evaluating the role of natural formations in the cairn-building rituals of Bronze Age and Iron Age Finland.

### **The Sacrificial Bog Site in Nidajno Lake (North-Eastern Poland) from Late Antiquity**

**Tomasz Nowakiewicz** (Institute of Archaeology University of Warsaw, Warsaw), **Aleksandra Rzeszotarska-Nowakiewicz** (Institute of Archaeology and Ethnology Polish Academy of Science, Warsaw)

Although the research of area of the ancient lake Nidajno in NE Poland has not yet gone beyond the stage of initial works, it can be stated that the site is the first Poland bog-site registered during regular excavations, similar to Scandinavian offering-places of Roman Period. This is justified by distinctive set of finds and specific context of their occurrence. The methodological problems related to the fieldwork at this site proved to be a huge research challenge. The site is situated in coastal zone of the ancient lake and was partially destroyed by melioration works. The archaeological research focused on the coastal zone, but its larger flooded part is still undiagnosed and will be the object of future excavations. Numerous artifacts discovered at Cząszkowo in 2010–2012 include several find categories: fragments of weapons, military equipment and elements of horse harness. There are also elements of personal attire. The most unique finds are set of gilded belt appliques, golden mounts of presentable sword and bird figurine. The style and techniques of their execution may lead to seek the provenance in the Black Sea region. Most finds bear traces of intentional destruction. The preliminary analysis allows to date them between 3rd and 5th c. AD. The character of the site and types of artifacts are related to far-reaching connections of inhabitants of Masuria region – with south Scandinavia as well as Pontic zone.

### **Inca Presence through Zigzag Figuration**

**Marjut Jalkanen-Mäkelä** (University of Helsinki, Helsinki)

The objective is to discuss some relevant ideas for interpreting the meaning of incised zigzag figures on stones at Inca sacred sites. The presentation will reveal some of the central mythical elements that can be defined on a semiotic basis together with archaeological elements. The focus is on central water constructions and their iconographic signs. The zoomorphic figures that had a fundamental role as symbolic representatives of the power of the Inca ruler are used. The zigzag motif is often interpreted as a snake or amaru, although other social concepts are also connected with the figures.

### **Sacred Sámi Natural Sites: Landscape, “Affordance” and Religious Practice**

**Elin Rose Myrvoll** (Norwegian Institute for Cultural Heritage Research, Oslo)

The psychologist James Gibson was the first to introduce “affordance” as a concept. “Affordance” represents an alternative to the anthropocentric understanding, where landscape use is seen primarily as a result of human decisions and perceptions. The relationship between people and landscapes - and materiality in a broad sense - could be seen as more mutual, entangled and symmetrical. The landscape and our material surroundings have an imperative influence on our subsistence strategies and activities. Following this view one can perceive landscape elements as actors that encourage, provide and offer opportunities and qualities suitable also for ritual practice. Sacred Sámi natural sites in northern Fennoscandia often appear as significant and prominent features in the landscape. They constitute large elements like mountains, lakes and woods, - as well as smaller ones like trees, stones and springs. This paper will focus on the landscape as an actor and provider of suitable places for ritual practice of Sámi religion and examine the interaction between landscape and people in the past, as well as between the landscape and archaeologists today.

## Swedish Oppression and Subversive Saami Colonization, Religion and Identity

**David Loeffler** (Murberget, the County Museum of Västernorrland, Härnösand)

Archaeological features associated with the Saami in an area customarily considered to lie outside that traditionally associated with this indigenous people requires a reassessment of the (pre)historical record. The establishment of the Swedish kingdom and church in the 16th century resulted in the creation of a military-religious dictatorship. Allegiance to king and church were compulsory, noncompliance was punishable by death. The priesthood became the instrument by which the kingship controlled its subjects. Military and religious coercion was effective against an immobile agricultural population. The Saami with their mobile lifestyle was less susceptible. Thus Sweden would devote great efforts in devising schemes to ensure hegemony over the Saami. Outwardly these stratagems seemed successful. However, recent archaeological finds in the county of Västernorrland indicate that the Saami, while paying lip-service to kingdom and church, resisted by secretly practicing their ancient beliefs through the construction and use of sacred stone circles. These clandestine activities were undertaken to share and transmit socio-ideological practices and beliefs to future generations. Stone circles were thus instrumental in a struggle spanning centuries during which the Saami sought to maintain and preserve their cultural distinction and identity in the face of increasing oppression from both kingdom and nation-state.

## New Users & Changing Traditions – (Re)Defining Sámi Offering Sites

**Tiina Äikäs** (University of Oulu, Oulu), **Marte Spangen** (Stockholm University, Stockholm)

Some Sámi offering sites have been used for over a thousand years. During this time the offering traditions have changed and new people have started using the places. Contemporary archaeological finds give evidence of both continuing traditions and new meanings attached to these sites, as well as to sites that were probably not originally used for rituals in the Sámi ethnic religion. In some cases the authenticity of the place seems to lie in the stories and current beliefs more than in a historical continuity or any specifically sacred aspects of the topography or nature it is situated in. Today's new users include e.g. local (Sámi) people, tourists, and neo-pagans. This paper discusses what informs these users both about what places are offering sites and about how they should relate to them. What roles do scholarly tradition, heritage tourism, and internal cultural have in (re)defining Sámi offering sites and similarly what roles do "appropriate" rituals have in ascribing meaning to particular places? How do we mediate wishes for multivocality with our professional opinions when it comes to defining sacredness?

## Persistent and Changing Sacredness: About the Biography of a Sacred Site in Setomaa District, South-Eastern Estonia

**Heiki Valk** (University of Tartu, Tartu)

The biographies of sacred natural places are hard to follow because of the scantiness and fragmentary character of written and oral data and, in most cases, lack of the archaeological record. Special possibilities for it exist in peripheral areas where living tradition has survived for long and, especially, if it can be compared with archaeological data. The paper discusses a sacred site of local level in Setomaa, south-eastern Estonia. There the continuity of a sacred places located in Härmä village can be followed on the basis of archaeological and oral data from the 16th or 17 century until the present time. The discussion is based on the complex consisting of a village cemetery deserted long ago, two sacred trees of different meaning, and an Orthodox chapel – destroyed, probably, in the 18th century and re-erected by the local community in 2012. The use and meanings of the sacred area can be observed as a dynamic process whereby the origins of sacredness remain hidden and obscure, being, probably, multi-layered. The paper discusses also the topic of heritage protection and contradictions between the viewpoints of archaeology and traditional values.

## How to Measure Holiness? Evaluating Natural Sacred Sites in Estonia

**Martti Veldi** (University of Leiden, Leiden), **Tõnno Jonuks** (Estonian Literary Museum, Tartu), **Ester Oras** (University of Cambridge, Cambridge)

Natural sacred sites are complicated multi-layered places representing different meanings, practices and values for people often with conflicting interests. These interest groups include landowners, local community, researchers, state officials, landscape developers, heritage workers, active practitioners, and so forth. In recent years the issues concerning detecting, localising, and protecting natural sacred sites in Estonia have come into special focus. Several of these cases have even been debated in media and discussed in court. Why these sites are considered sacred? For whom are they sacred? How and why should they be protected by the law? From a practical point of view these sites need to have an effective, and at the same time dynamic protection principles. This starts with definitions of what constitutes a natural sacred site as well as precise localisation and characterisation of these sites. This altogether demands careful consideration of different aspects, including archival research, landscape inspections, interviews with interest groups, and also looking into legal issues. In 2013 a small-scale project was carried out to assess the condition and validity of 15 protected natural sacred sites in Esto-

nia. The goal of the project was to establish basic methodology for localising and evaluating natural sacred sites. Some of the results of this study are presented.

### **Sacred Nature vs. the Church – Choosing between Powerful Locations in Rituals of the Pre-Modern Finnish Folk Religion**

**Sonja Hukantaival** (University of Turku, Turku)

Various sacred locations are used in many rituals of pre-modern Finnish folk religion described in 19th century folklore accounts. In some cases a church or churchyard is chosen as the powerful place of the rite and in others some natural location: e.g. a rapid, hill, stone, or tree. This paper discusses these choices in the light of a specific type of ritual. This magic practice involves burying a miniature coffin with either a small animal (often a frog) or a wooden figure inside. Several tens of these miniature coffins have been discovered under the floors of churches in Finland. The practice has quite clear connections to Christian burial rituals, but still the site of burial is not always a typical Christian one. The interests of this paper are firstly, what has guided the choice between an ecclesiastical site and a natural, powerful place, and secondly, which characteristics made the natural location powerful. In the light of the accounts of the ritual, it seems that the same idea that made the natural places powerful has been transferred to the ecclesiastical context, not vice versa. Ultimately, this is connected with the dynamic relationship between 'official' religion and folk religion.



### **T06S017 - ELITE BURIALS IN PREHISTORIC AND EARLY MEDIEVAL EUROPE**

**Organizers:** **Darek Błaszczyk** (DB Department of Archaeology, University of Warsaw, Warsaw), **Monika Elečková** (ME Department of Prehistory, Adam Mickiewicz University in Poznań, Poznań), **Samuel Španihel** (SŠ Department of Archaeology and Museology, Masaryk University in Brno, Brno)

Cemeteries and burials provide one of the most important sources for social archaeology. The disposal of the dead tells us much about society and about how people perceived themselves and their world. The treatment of the dead depends on various factors, including the social position occupied by the deceased. For ages prominent members of a particular society or community have been often buried in a special way to manifest their social position. This session aims to present, discuss and compare various traditions of elite burials from different European territories spanning from prehistoric times till the Middle Ages. We are going to explore their social, political and symbolic meaning taking into consideration their origins, chronology, location, construction, deposited grave goods, etc. We are also going to consider if use of new developments in bioarchaeology such as stress markers, DNA, trace elements and stable isotopes analyses could help in investigating biological condition as well as social and ethnic affiliation of individuals buried in them. Last but not least, we also would like to discuss the problems of the excavation and publication of sites with elite burials. Papers addressing one or all of these issues are welcomed.

### **ORAL PRESENTATIONS**

#### **Exceptional Burials of the Blicquy-Villeneuve-Saint-Germain Site of Buthiers Boulancourt, France (4900-4700 BC)**

**Cécile Buquet-Marcon** (Inrap and Cnrs UMR 7041, Paris), **Anaïck Samzun** (Inrap cif - UMR 8215 trajectoires, Paris)

The Neolithic site of Buthiers-Boulancourt discovered in a sandpit and recently excavated in preventive context, is dated to the late Blicquy- Villeneuve-Saint-Germain period (4900–4700 BC ). The remains of seven Danubian dwelling houses were exposed as well as a fireplace and ovens. The site also contained two small groups of individual burials situated close to the borrow pits. After a short archaeological and anthropological description of each of the 6 graves, we will then focus on the 2 exceptional ones. The first one is a cremation, which are very seldom found for this period on the French territory. The second one is the grave of an amputated man who survived the operation and which is buried with exceptional grave goods. We will also examine the criteria to determine them as "elite burial" as early as the 5th mil. B.C. What are the elements that make exceptional burials? And beyond it, Does the elite need exception?

#### **"Rich Grave" = "Princely Grave"? On Socio-Economics of West-Hallstatt Princely Graves**

**Tim Kerig** (DFG Research Training Group 1878, Archaeology of Pre-Modern Economies, Universities of Cologne and Bonn, Bonn), **Mark Schmidt** (University of Leipzig, Leipzig)

Why were some graves richer than others? What is the utility of a single additional piece of grave-good? Exceptionally rich tombs are an inter-culturally wide spread phenomenon. Our contribution aims on socio-economics behind the practice.



We make use of examples from the early Iron Age of E France and SW Germany to demonstrate how funerals may create benefit. We strictly focus on the successor as agent: if 1) the social position of the successor is displayed and at the same time achieved or fixed via the sepulchral effort, and if 2) a social position may be valued in accordance with the assumed access to resources and services connected to the position, then 3) people can expect more benefit from higher social positions, thus they 4) invest more in higher positions by costly burials of their predecessors. The reason for giving grave goods may not be primarily an economic one but the custom as such can only survive if it follows economic constraints. The custom can be interpreted independently from the economic conditions of its transmission, but only those societal institutions which are not counteracting the logics of economy have a chance to survive.

### **Early Iron Age Elite Burials in Bohemia and Mediterranean Imports**

**Miloslav Chytráček** (Institute of Archaeology of the Academy of Sciences of the Czech Republic, Prague), **Ondřej Chvojka** (University of South Bohemia in České Budějovice, České Budějovice), **Jan John** (University of South Bohemia in České Budějovice, České Budějovice), **Jan Michálek** (Písek)

The earliest chamber graves with four-wheeled wagons under barrows in Bohemia are dated to the Hallstatt C period. During Ha C and the beginning of Ha D1 important trade routes were associated with the transport of amber. At this time Bohemia was only peripherally involved in this long-distance trade network, as a few finds belonging to the earlier horizon of Etruscan imports show. In the second half of the 6th century BC the course of the amber route shifted towards the west. In central Europe it passed through the Bohemia basin towards the Danube, and then through the Alpine passes to northern Italy. The furnishing of rich graves with horse-gear and two-wheeled chariots at the time of the formation of the La Tène culture (Ha D3 – LT A) can be judged as one of the most important examples for the level reached by artistic craftwork in west and south Bohemia. The grave goods from rich Early La Tène tombs illustrate the fact that Bohemia was well-supplied with Etruscan products and sets of imported bronze vessels. Greek pottery reached Bohemia via northern Italy in the 5th century BC as well.

### **Live by the Sword, Die with the Sword? Funerary Discoveries Belonging to the Military Elite in the Lower Danube Basin (2nd century BC – 1st century AD)**

**Cătălin Constantin** (Independent Researcher), **Vlad Cărbăși** (“Vasile Pârvan” Institute of Archaeology, Bucharest)

The aim of this paper is to approach the military phenomenon as expressed through the funerary discoveries belonging to the Late Iron Age in the Lower Danube Basin. The concentration of this type of findings on the Danube valley, i.e. approximately present day south-western Romania, north-western Bulgaria and eastern Serbia, as opposed to the scarcity of funerary representations in the rest of pre-roman Dacia raises several questions, and thus, a comparison between the grave inventories can offer information on the funerary behavior of a military elite. Although the area with which this presentation is concerned exceeds the political and cultural boundaries accepted for the Late Iron Age, the archaeological record reveals several similarities between the graves whose inventories consist of weapons and military equipment, and as such, a comparative approach is required.

### **Warrior Necropolises of Nomadic Sarmatians of the 1st – 2nd cc. AD**

**Sergey A. Yatsenko** (Russian State University for the Humanities, Moscow)

Rare Sarmatian necropolises where all men were buried with weapons in individual graves were placed near the settlements of sedentary vassal tribes. In “Golden Cemetery” in the South the unique form of barrows came along with high standardization of burial rituals. Probably, in each grave there was armor with metal elements, a helmet, a spear, a dagger, a quiver; their types were different. There was no massive gold ware. In Chertovitskoe-I on the border with the Forest Zone the weapons set was simpler and similar to the one used by civil guardsmen from clan necropolises of the South; military leaders can be identified only due to swords details. Stable warrior groups’ maintenance was seldom necessary only on the borders of Sarmatian tribes’ territories, when there were frequent conflicts with well-armed enemies or for defense of important tribute tribes. As “Golden Cemetery” graves were robbed and women were rarely buried there, Chertovitskoye-I burials were not raided and about half of graves were women’s. Probable memorials of concrete military actions where warriors were buried in a row make a special type (Novye Bedrazhi).

### **Tarand-Graves as Burial Places for the Elite**

**Anu Kivirüüt** (University of Tartu, Tartu), **Maarja Olli** (University of Tartu, Tartu)

Roman Iron Age (50 – 450 AD) monumental stone graves, called tarand-graves, in Estonia are considered as the burial places for the elite. It has been suggested because the graves were richly furnished and based on the demographic calculations, there had to be much more people living in the area than have been recovered from the known burial places of the era. Social stratification may have been also present among the elite. The hierarchy of the prime of the society can be

reflected in the assemblage processes of tarand-graves – types and location of the different artefacts and bone elements. The aim of this presentation is to discuss the burial traditions of the elite using the example of Viimsi tarand-graves. The material consists of fragmented cremated and inhumed human bones and artefacts which had been scattered all over the grave areas. The artefacts and bone elements were connected with their location data and analysed in different layers and grave areas. Based on the results of the analysis, the social and symbolic meanings of the grave contents and their location in the graves are interpreted and unveiled. Also, the future prospective of the analysis of monumental stone graves with commingled material is discussed.

### **Weapons as a Diagnosis Element for Non-Elite Burial in the Sântana de Mureş – Cernjakhov Culture**

**Tiberiu Plăcintă** (Department of History, “Alexandru Ioan Cuza” University of Iași, Iași), **Vasile Cotiugă** (Department of History, “Alexandru Ioan Cuza” University of Iași, Iași)

The lack of weapons among the Sântana de Mureş–Černjakhov (SM-C) grave goods has become notorious, with researchers proposing various answers to why only a few pieces of weaponry have ever been found in the numerous SM-C cemeteries found. The purpose of this paper is to centralize and analyse the different opinions regarding this situation. Did the graves — be they Gothic, Dacian, Sarmatian or provincial Roman — lacked weapons because of some social determination, or was this funeral practice a “cultural inheritance” transmitted via the Wielbark culture, devoid of socio-economic aspects? The factors that might have determined the emergence and diffusion of this practice are assessed in order to explain how and why it was transferred from the Goths to subjected populations, and to determine the status of those few buried alongside weapons. Starting from the most common theories, which attribute the lack of weapons to the high cost of producing iron goods or to the belief in a peaceful afterlife, and going through other opinions (e.g., a manifestation of Odin’s cult), the authors advance another possible explanation, verified by both archaeological and historical sources: the Gothic elite imposed a rule that forbade commoners under their rule to bear arms.

### **A Singular Late Antique Burial from San Martín de Dulantzi Graveyard (Basque Country, Spain)**

**Teresa Fernández-Crespo** (University of the Basque Country, Bilbao / Academic Visitor at University of Oxford, Oxford)

The main aim of this paper is to look into an unusual funerary deposit found in the Late Antique graveyard of San Martín de Dulantzi (Basque Country, Spain), excavated in 2009 and 2010. It was recovered from a stuccoed masonry tomb in a church with baptistery built around the 6th century. It contained a single secondary burial together with some faunal remains. The building also included a privileged cemetery until 7th century with nineteen graves, located both inside the church and in the space between the church and the baptistery, nine of them with grave goods including weapons, pottery and personal ornaments. The case is analysed from an archaeo-anthropological perspective in order to deepen the biological and social background of the inhumated individual. Due to its singularity, the deposit is interpreted as a foundation burial.

### **Styrbjörn’s Descendants - The Life and Death of a Pre Viking Chieftain**

**Andreas Henni** (County Museum of Uppsala, Uppsala)

In the area around Uppsala, Sweden there is a high frequency of unusually large burial mounds indicating the emergence of a social elite during the Vendel and Viking periods (i.e. European early medieval period). One of these large mounds was excavated in 2012. The deceased had been accompanied on the funeral pyre by a number of animals. Among the severely burnt artefacts we can recognize fragments from weapons, personal belongings and horse equipment, for example gilded fittings with mounted garnets. Furthermore, there were gaming pieces, imported ceramics and glass. The artefacts were of a very high quality. Around the mound there is a large burial ground dating from around 600- 1200 AD with further indications of higher social status, involving the remains of big burial mounds, a Viking age weapon grave and a rune stone. The interpretation is that the area has been used as a family burial ground, connected to a manor. This was established in the late 6th century and broken up in the early 13th century, when it was donated to the nearby church. The great mound can thus be viewed as erected over the founder of an aristocratic dynasty.

### **Death Rituals of Aristocratic Women in Viking Age Eastern Scandinavia**

**Fredrik Svanberg** (Swedish History Museum, Stockholm)

The most exclusive known burials of the Viking Age in eastern Scandinavia were burials for aristocratic women. These burials, however, have not received the attention within research that they deserve and are all more or less poorly published. The paper will discuss and compare the material from six such graves, the reconstruction of the death rituals and the interpretations of the roles of the buried women within Viking Age society.

## Chamber Graves in Early Medieval Poland

**Darek Błaszczyk** (Institute of Archaeology, University of Warsaw, Warsaw)

Early medieval graves of 10th to 13th century in Poland consist of simple inhumation burials in pits, sometimes accompanied with more or less rich assemblages of personal belongings and grave goods. However, among them appear a group of distinctive burials characterised by interments in graves with large pits and wooden chambers usually containing numerous and luxury grave goods. Many questions are connected with these graves concerning their social and political meaning, and especially the presence and influence of Scandinavians in the territory of medieval Poland. Thus, the goal of this paper is to present this group of elite burials as well as discuss their context and interpretations in reference to archaeological, anthropological and historical evidence. The detailed study comprises their origins, location in the landscape and within cemeteries, chronology, construction and furnishing as well as sex, age, social, religious and ethnic affiliation of the deceased buried in them.

## Early Medieval Cemetery around the Church at North-Eastern Bailey of Stronghold Břeclav-Pohansko

**Renáta Přichystalová** (Masaryk University in Brno, Brno), **Vladimír Sládek** (Charles University in Prague, Prague), **Eliška Schuplerová** (Charles University in Prague, Prague), **Kristýna Farkašová** (Charles University in Prague, Prague), **Martin Hora** (Charles University in Prague, Prague), **Patrik G. Flammer** (University of Oxford, Oxford)

The early medieval stronghold Břeclav-Pohansko was important residential agglomerations of Great Moravian Empire. In its north-eastern suburb was discovered Christian brick church. Around the church was found the cemetery with 152 graves. Five of these graves were situated inside of the church. The burials in interior of the rotunda undoubtedly were belonging to elite part of community living in NO suburb. But what about the buried individuals around the church? Some of them had got a rich funeral equipment. These deceased we can involve to high social class of this community. In the time of the turn of the 9th and 10th century had increasingly greater influence of Christianity and the people were buried without the funeral gifts. Christianity in the Great Moravian Empire was spread from the elite to the lower part of community. It exists a big probability, that prominent person was buried without the equipment. How to distinguish the elite from common people? We choose bio-archaeological and archaeological approach to investigate the direct link between the specific group of skeletons with the specific anthropometric parameters (stature and weight), health conditions (absence or presence of parasites in the digestive tract of buried person) and the complexity of the burial rite with or without the funeral equipment.

## POSTERS

### The Rich Graves in Ulów (south-eastern Poland) – Local Elite Burials or Collection of Trip Souvenirs?

**Barbara Niezabitowska-Wiśniewska** (Institute of Archaeology, Maria Curie-Skłodowska University in Lublin, Lublin)

The complex of sites in the vicinity of village Ulów is located in the Middle Roztocze area (Lublin Voivodeship, south-eastern Poland). It consists of eight archaeological monuments. Among them, there are two cemeteries (sites 3 and 7). The cemetery No. 7 is dated to the middle of the 3rd century A.D. – to the middle of the 5th century A.D. On the map of archaeological cultures, Ulów is located in the settlement zone F of the Wielbark Culture. Therefore, the features typical of this culture dominate over the cemeteries discovered in Ulów. However, no fewer is the number of features of funeral rite, location of the site, as well as grave goods possessing parallels in other cultural units (e.g. Masłomęcz Group, Chernyakhov Culture). A part of the finds has even wider analogies scattered through a vast area of the European Barbaricum. At the site No. 7 a few “rich graves” were discovered (e.g. nos. 19, 33, 43A). The funerary equipment of each of these burials combines elements characteristic for aforementioned cultures. Therefore the main question is – if it were the graves of local elites or the collection of items obtained during germanic trips.

### Silver Women, Iron Men: The Migration Period Elite Burials in Northeastern Lithuania as a Reflection of Social Change

**Laurynas Kurila** (The Lithuanian Institute of History, Vilnius)

In the context of the East Baltic Iron Age (Roman Period – Early Medieval) mortuary record, East Lithuanian barrows (3rd–11th centuries AD) seem rather uniform in terms of burial customs and grave goods – both in their quantity and quality. There is a time span and space, though, of concentration of elite burials. They show two successive stages of change in ideology and social organization, and probably several external shocks. The Early Migration Period (late 4th – mid-5th centuries AD) is marked by idiosyncratic female burials given silver ornaments, beads, etc. Some of the grave goods have analogies in Central Europe and late Chernyakhov culture. The Late Migration Period (mid-5th – early 6th centuries AD) brought a new phenomenon – male burials richly equipped with weapons, iron and silver ornaments, some of them of Central European and Middle Danube origin. Stress on warrior symbols, domination of young males among the elites, and introduction of cremation reflect new social milieu. Most of elite burials are located in 50–70 kilometres length and

300–400 square kilometres area. The “range of power and prestige” stretches from South, along the basin of the Žeimena River, and is crowned in the North by the famous Taurapilis “duke” burial.



## T06S018 - OLD WORLDS, NEW HISTORIES: TOWARDS AN INTEGRATION OF ARCHAEOLOGICAL AND HISTORICAL DATA-SETS

**Organizers:** Aleks Pluskowski (University of Reading, Reading), Diego Calaon (Università di Ca' Foscari, Venice), Angus Mol (University of Leiden, Leiden)

Archaeological and historical studies increasingly require the processing of significant and multiple quantities of data, drawing on a diverse suite of scientific techniques, and integrating the vast body of existing material – already excavated, archived or documented – into meaningful syntheses which are relevant to both international academic and public audiences. Whilst the nature of our research does not permit a standardised, ‘one size fits all’ approach we all encounter similar problems in contextualising and integrating our varied datasets, and particularly relating these to historical sources which are effectively ‘meta data’ insofar as they do not engage with the physical landscape in the same way as archaeologists. Traditionally, the integration of data has followed a similar protocol defined by the format of a site report – a series of specialist reports that are brought together in a concluding chapter or discussion. In the case of projects tackling major societal and cultural processes, defining the nature of the relationship between diverse and complex sets of data remains a formidable challenge. The aim of this session is to act as a forum on the integration of multiple forms of data and perspectives in shaping the joint development of historical and archaeological studies.

### ORAL PRESENTATIONS

#### From the Colony to the Crusader State: Integrating Multiple Datasets and Scales of Analysis in Mapping Cultural and Ecological Change in the Medieval Eastern Baltic

**Alex Brown** (Department of Archaeology, University of Reading, Reading), **Aleks Pluskowski** (Department of Archaeology, University of Reading, Reading), **Rowena Banerjee** (Department of Archaeology, University of Reading, Reading), **Krish Seetah** (Stanford University, Stanford), **Daniel Makowiecki** (Institute of Archaeology, Nicolaus Copernicus University, Torun), **Lisa-Marie Shillito** (School of History, Classics and Archaeology, University of Edinburgh, Edinburgh), **Marc Jarzebowski** (Friedrich Meinecke Institute of History, Freie Universität Berlin, Berlin), **Kaspars Klavins** (University of Latvia, Riga), **Juhan Kreem** (Tallinn town hall Archives, Centre for Medieval Studies, Tallinn University, Tallinn)

The crusades in the eastern Baltic not only completely transformed the indigenous pre-Christian tribal societies but can also be associated with an ecological ‘event horizon’, which saw an unprecedented intensification in the use of the landscape and the exploitation of natural resources. Over the last few years the Ecology of Crusading project has been investigating this impact from diverse perspectives with interdisciplinary objectives. Focusing on castles built by the new theocratic elite in Prussia and Livonia – the centres of landscape reorganisation following the crusades – a range of archaeological, palaeoenvironmental and historical data has been obtained and integrated. This paper outlines the successes and limitations of bringing together pollen, plant macro-fossils, animal bones, timber, sediments, material culture, written and cartographic sources into a cohesive interpretative framework. One of the biggest challenges has been synchronising data at varying scales and chronological resolutions. The project presents a blueprint for future inter-regional research programmes focusing on the relationship between cultural and ecological change in dynamic frontier and heartland landscapes.

#### Triangulating Landscapes of Early Medieval Governance

**Stuart Brookes** (Institute of Archaeology, University College London, London)

The Leverhulme Trust project “Landscapes of Governance” aims to bring archaeology, place-names and written sources together in a national study of early medieval assembly sites. Amongst its varied primary outputs is a mapping of the administrative territories recorded in Domesday Book (hundreds, wapentakes, shires, etc), and a gazetteer of over 800 places of documented public assembly. Assemblies appear regularly in written sources (legal and manorial documents, narrative texts, folklore) and in place-names, but the ephemeral nature of the human activity that took place means that there is little or no material evidence that intrinsically associates them with judicial practices. Their study, therefore, requires a carefully coordinated multidisciplinary approach combining desk-based research and ground-truthing. Moreover, whilst these data form an important resource in their own right, the analysis of assembly sites further hinges on integration with other major datasets, including early medieval funerary evidence, Roman and medieval communications, portable antiquities. This paper argues that only by triangulating these data can we begin to address fundamental questions about the nature and development of legal and political frameworks in an early state.

## Historical Discourse Versus Integrated Research: The Development of the Landscape and Settlements in Medieval Coastal Flanders from a Multiple Data Perspective

**Dries Tys** (Free University of Brussels, Department of Art History and Archaeology, Brussels), **Pieterjan Deckers** (Vrije Universiteit Brussel, Brussels)

In the past, medieval archaeology was subjugated to historical “Master Narratives”. This influenced the archaeological research profoundly. Yet, medieval history is merely a version of the past, a discourse, while artifacts studied in medieval archaeology are not mere reflections of history but tell their independent interactive story. A holistic understanding can only be reached by an integrated contextual approach including the study of other types of evidence. Our research underlines the necessity of an initial, study of datasets independent from textual traditions. The successful integration of various datasets, resides just as much in a subsequent stage of interactive inquiry crossing disciplinary boundaries, in order to recognize complementarities and mutually supportive evidence. This approach is demonstrated by research of the medieval landscape dynamics of coastal Flanders. In the 1950s, the positivistic approach of written documents resulted in the grand narrative that the coastal landscape was the product of monastic investments. By integrating a wide range of data, written evidence, data from landbooks, monumental structures, earthworks, place names and archaeological sites, the image has changed drastically. The theoretical perspective has changed towards the study of resources and reproduction strategies by peasants and nobilities as main motivator for the dynamics of landscape development.

## Any Time, Any Place, Anywhere... New Perspectives on the Past from Test Pit Excavations in Historic Settlements

**Carenza Lewis** (Division of Archaeology, University of Cambridge, Cambridge)

The University of Cambridge “Currently Occupied Rural Settlement Project” has completed more than 1,500 archaeological test pit excavations in more than 50 rural settlements in southern England, producing vast amounts of data including thousands of pottery sherds. This paper will show how such data can be combined with historical evidence to illuminate the development of settlements otherwise completely inaccessible to archaeology and aggregated to throw new light on major international processes and events such as late antique continuity and change, the origins of the nucleated village and the impact of the Black Death. It will conclude by highlighting that this approach can be carried out anywhere, and considering its potential to generate comparative perspectives on the past anywhere in Europe.

## From Torcello to Venice: Anthro-Ecological Perspectives for Narrating the Origins of Serenissima

**Diego Calaon** (Ca’ Foscari University, DAIS, Department of Environmental Studies, Venice)

This paper aims to describe the material consciousness of Venice’s origins, through time, considering both archaeological artefact sequences and historical reconstructions. It reflects on new possible approaches to material interrogation based on anthro-ecological perspectives. Beyond materiality, anthropological approaches have a very significant role to play in a setting like Torcello and Venice, where the much of the modern population literally live by selling the uniqueness and beauty of this historic city. The past, material and intangible, has become the core business of local inhabitants. The disparity between the history of the “origins”, traced by the archaeologists during the last decades, and public knowledge, is surprisingly evident. 50 years of modern archaeological and archival research produced in Torcello island a huge set of data and interpretations, nevertheless hundreds of thousands of visitors every year have been told by local guides that Torcello started when barbarians destroyed the nearby roman city, exactly how it was said in the early 19th century. Summarizing Venice’s archaeology and history has a specific political connotation: UNESCO have played a critical role in furnishing the modern conceptualisation of local history. How does the present memory of local venetians interact with the static view of classical archaeological and historical reports?

## Filling in the White Spaces: Integrating Archaeological Data with Historical and Natural Environment Datasets in a Landscape-Based Approach to Interpretation and Presentation

**Caron Newman** (Newcastle University, School of History, Classics and Archaeology, Newcastle)

Techniques such as historic landscape characterisation and map regression have been used in recent years to provide a more landscape orientated approach to presenting archaeological data. This allows maps to be produced in geographical information systems that provide a whole map coverage rather than presenting specific points with lots of blank space. Such landscape-scale approaches are more compatible both with some historical data sets and natural environment datasets. This paper will explore the pitfalls and benefits of these landscape-scale approaches to archaeological data using examples from recent PhD research on the later medieval landscape in Cumbria, UK, in particular, though reference will be made to the international use of such approaches in examining multi-period landscapes. It will examine in particular how methods such as historic landscape characterisation help to contextualise the site-specific data that has for long dominated archaeological approaches in both data research and presentation. It will finally examine the philosophy behind



landscape-scale data presentation and look at how this may evolve to enable the greater integration of a diverse variety of environmental datasets.

### **The Poor Neighbour**

**Håkan Aspeborg** (Swedish National Heritage Board, Stockholm)

The central place of Uppåkra, in southern Sweden is the largest, artefact-rich and longest lasting Iron Age settlement in the country. The settlement was constantly inhabited from 100 BC to 1000 AD. Uppåkra covers over 40 hectares and has thick occupation layers, in average between 1–2 meters thick. More than 30,000 objects of gold, silver and bronze have been found at the site, among them luxury imports. The ongoing research at the central place is inter-disciplinary. A place cannot be central without a surrounding landscape. This paper focuses on the result of an excavation of a small Iron Age hamlet situated a few hundred meters away from the central place, which was inhabited from 100 BC to 500 AD. The research here, although a contract excavation, has been inter-disciplinary as well. Now we can ask questions about how these two settlements differ from, and influence each other, the economic, social and power relations between the people living in them. What was the interaction between the people at the hamlet and the people at the central place like? How was the power from the central place manifested? The synthesis is drawn from many different sources and data.

### **Trans-Disciplinary Crossings and Caribbean Encounters: Synergies among Archaeological, Historical, Geo-Chemical, Heritage and Network Studies**

**Andrzej Antczak** (Universidad Simón Bolívar/Leiden University, Leiden), **Habiba** (Konstanz University, Konstanz), **Jason Laffoon** (Leiden University, Leiden), **Jimmy Mans** (Leiden University, Leiden), **Angus Mol** (Leiden University, Leiden), **Sjoerd van der Linden** (Leiden University, Leiden), **Corinne L. Hofman** (Leiden University, Leiden)

The Caribbean was the stage of the earliest, sustained encounters between the peoples of the Americas and Europe. These encounters were of formative importance, not only for Caribbean cultures and societies themselves, but also for the development of the wider colonial and early modern world. Still, the scholarly treatment of this transformative process has generally been one-sided, emphasizing European viewpoints and historical sources of information. Nexus 1492, island networks and Carib are a collective of three trans-disciplinary research projects (based in Leiden, Amsterdam, Konstanz and Leuven universities) which seek to provide a new view of this important period in history. The research design of these projects explicitly combines such disciplines as archaeology and history, and geo-chemical, heritage and network studies. This paper will discuss the concepts behind and benefits of bridging the “historical divide” by focusing on research synergies rather than on the traditional strongpoints of individual disciplines. It will also discuss some of the practical and epistemological questions that arise when lines of research and researchers from different backgrounds come together. The paper will finish with a brief perspective on the changing role and importance of trans-disciplinary histories in colonial settings.

### **OpenATLAS - An Open Source Database System for Archaeological, Historical and Spatial Data**

**Stefan Eichert** (University of Vienna, Department for Prehistory and Historical Archaeology, Vienna)

The project “Eastern Alps Revisited” (Austrian Science Fund fwf – p. Nr. 24045), of the Austrian Academy of Sciences and the University of Vienna, focuses on the interdisciplinary cooperation of history and archaeology for the period of the early Middle Ages. As a common interface for the collaboration, the open source database system “Openatlas” ([www.openatlas.eu](http://www.openatlas.eu)) has been developed in order to capture data from both disciplines. The cidoc-crm ([www.cidoc-crm.org](http://www.cidoc-crm.org)) was used for the mapping of information. The proposed paper now aims to present this database project. It focuses on four main points: 1. The conceptual requirements of both disciplines; what kind of information from archaeological and historical sources was to be recorded? 2. The implementation of these requirements into a data model within the project; how the cidoc-crm was used and the paper discusses how archaeological and historical data as well as their internal relationship and their connections to other data were dealt with. 3. The technical implementation; the technical details of the backend and frontend are explained and various interfaces (web, GIS) are presented. 4. Common grounds and barriers we account for the experiences gained; the problems that occurred during the work and the solutions found.

### **New Discoveries from Old Excavations**

**Alice Forward** (Cardiff University, School of History, Archaeology and Religion, Cardiff)

The medieval history of South Wales, UK, has been extensively written on; from Iolo Morgannwg in the late-18th century to R. R. Davies in the late-20th century. Although archaeologically there is a wealth of material evidence from this region, interpretation has been framed by and fitted into established historical narratives. As a result, our understanding of the archaeology of medieval South Wales has to date focused on providing evidence to support these histories. In revisiting a number of excavated sites, and re-focusing analyses to place the archaeology at the centre of interpretation, new ideas and revised narratives have been developed for medieval South Wales. They do not fundamentally change our thinking,

but they begin to provide a clearer sense of place and people where the medieval documentary sources are lacking. By placing the archaeology at the fore, as well as respecting and valuing the historical evidence, this enables a more balanced and detailed interpretation of aspects of life in medieval South Wales.

### **Mesoamerican Manuscripts through Different Eyes: A Multidisciplinary Approach to Understanding Their Material Composition**

**Ludo Snijders** (Leiden University, Faculty of Archaeology, Leiden)

Long before European chroniclers started to document its history, Mesoamerica was home to unique indigenous pictographic and hieroglyphic literary traditions. Their books contained unique information on religious rituals as well as the histories of ruling dynasties. Of these documents less than twenty survived the European conquest, now all kept in European institutions. Though they have been extensively studied for their content, an adequate understanding of their creation is still lacking. Trying to study these books as objects requires the combination of multi-disciplinary lines of investigation and information, including but not limited to archaeological and historical analyses. Non-invasive spectroscopic techniques identify chemical composition of paints; colonial sources give insight into writing techniques; and botanical and zoological data provide further ingredients for colorants and adhesives. This data is combined to experimentally replicate the chaîne opératoire. Knowledge about the creative process is essential for digital reconstruction and conservation. Furthermore digital information facilitates access for the indigenous population of Mexico, now cut off from their own heritage and histories. In this specific project, working with material-science engineers, librarians and historians has shown that the strength of archaeology lies not in the ability to transform diverse scientific paradigms, but to communicate across them.

### **The Selfish Paradigm. Problems with Integration of Archaeological and Historical Data in the Studies of Archaic Greece**

**Wawrzyniec Miścicki** (Institute of Archaeology, Jagiellonian University, Kraków)

Reconstruction of culture and society of Archaic Greeks naturally involves merging various types of sources. However, this process is very different from plain and simple integration of different data-sets. Behind every source there is a specific methodology, school of interpretation, or even ideology that was used to describe it within the frames of a specific discipline. To understand the artefact is to understand the interpretation that stands behind it. This point may be discarded as a truism, but in reality is often neglected. Mainly, as I shall argue, because the paradigms used by archaeologists and historians could significantly limit the possibility of interdisciplinary interpretation. The aim of my paper will be to present key problems regarding the data-integration as well as propose some methodological solutions to them. The analysis will be concentrated on various examples taken from the studies of Archaic Greek warfare, a discipline where the integration of historical, archaeological and philological approaches and data-sets is the backbone of almost every research (Snodgrass 2013, 91-92).



## **T06S019 - IMAGES OF THE PAST: GENDER AND ITS REPRESENTATIONS**

**Organizers:** **Jana Esther Fries** (Lower Saxony State Service for Cultural Heritage, Oldenburg), **Doris Gutsmedl-Schumann** (University of Bonn, Bonn), **Jo Zalea Matias** (Department of Archaeology, Durham University, Durham)

Visual representations of gender throughout prehistory and history are seen in museum displays, reconstructions, movies, children's books, comics, living history or similar. With this session we propose to have a critical look on visual presentations of the past, and to reveal the gender concepts behind them. As "a picture is worth a thousand words", these visual presentations have great influence on the observer's view on the past and several aspects of the present – especially when the images are used in communication with the public. The session shall illustrate 1) by whom and how images of the past and past gender are produced 2) what the (hidden) aims of designers, scientists, artists, curators or actors are when depicting (pre)historic humans 3) how conscious and unconscious concepts of (prehistoric) gender influence illustrations, models, drawings, movies, children's books, and TV series 4) how images of the past influence the ideas of readers' and visitors' concepts of (contemporary) gender 5) what visual presentations of the past tell about archaeologists or archaeology as a profession We invite professional archaeologists, re-enactors, museums designers, artists as well as journalists to present papers and posters and to discuss how images of prehistoric gender are created and their effects.

### **ORAL PRESENTATIONS**

#### **A Faceless Gender: The Corporeality in the Çatalhöyük West Mound**

**Goce Naumov** (University of Skopje, Skopje), **Peter F. Biehl** (SUNY at Buffalo, Buffalo)

Çatalhöyük, a well known prehistoric site in Central Anatolia, was inhabited on two mounds. One earlier and bigger established on the East part and another smaller erected later in the West area. The human representations from East

Mound are often included in various scientific and popular publications, thus discussed throughout cultural-historicist and post-processual perspectives. The abundance of archaeological data and variety of interpretations provided broader understanding of gender and corporeality among anthropomorphs in Çatalhöyük East. But on the other side, nothing is known concerning human representations produced by the inhabitants of Çatalhöyük West. Due to the reduced interest and smaller scale research, the West Mound was mainly ignored for archaeological consideration until 2000s. In the middle of 2000s a more extensive fieldwork seasons were launched providing significant data related to figurines as well. Many of the figurines do not bear apparent corporal features and merely few have visible indications of sex. This regards both human and animal representations and not only those modeled as figurines, but also the images painted on vessels. The paper will assert the preferred principles of corporeality and gender among West Mound representations and how they differ or retain those previously established in the East Mound.

### **Antagonizing Images? Visual Representations of Gender in Archaic Greek Vase Painting**

**Wawrzyniec Miścicki** (Institute of Archaeology Jagiellonian University in Krakow, Krakow)

For many years scholars have viewed images of the gender on Archaic vases as a passive reflection of contemporary society. Recent studies have challenged this perspective as focusing on the studies of perceived meaning of the images attributed much more active role to the artists and their products. One of the most interesting case of this switch was made by M. Shanks (1999), who interpreted Proto-Corinthian pottery as an active design set to forged a social role of a man/warrior through antagonizing him against various elements of disorder. The purpose of my paper is to reexamine gender role of a warrior as a product of the Archaic Greek imagery and interpreted by modern scholars. In particular I will be interested in the process of creating the figure of a warrior through fitting it into gender-based frames. How the masculinity of a warrior is portray against the other? How the visual representation of gender reflect to the society of Ancient Greece? Finally, is the claim that gender-based social roles were the main topic in this particular sets of images a valid one, or is it an anachronism of modern science?

### **Gender Relations on the Images of Roman Banquets**

**Marina Regis Cavicchioli** (Universidade Federal da Bahia, Departamento de História, Salvador)

The ritual that permeates feeding allows the representative strength of its symbolic elements exceeds the space delimited by the nutrition of the body. This characteristic of feeding is what allows, in our point of view, the introduction of elements typically erotic in scenes involving food or the exchanges between erotic elements and elements of the food order. So, far from stopping on issues devoid of any symbolic content, feeding have a direct relationship with signs that represent and establish relationships between genders. This is the situation of banquets in the Roman world: the banquet is characterized by being one of the main rituals of Roman society, and the association between food, sexual pleasure and gender relations was very present in them. The iconography of the first century is a clear testimony of this association, as we intend to demonstrate.

### **Images from the Vendel and Viking Ages: The Expression of Gender**

**Michaela Helmbrecht** (Museumspartner, Innsbruck)

There is a large quantity of images from the Vendel Period and the Viking Age. This period, the Late Iron Age in Scandinavia, is a time of transition from orality to literacy. In my contribution, I would like to explore the role of gender. How was gender expressed in images? Was it important at all to express gender at all times? How can we deal with images that appear ambiguous to a modern viewer?

### **The Boudica Trope: Deconstructing the Legend**

**Jo Zalea Matias** (Department of Archaeology, Durham University, Durham)

Warrior, mother, queen – who was Boudica of the Iceni? This paper aims to examine visual representations of this illustrious historical figure ranging from statuary, artistic reconstructions, paintings and popular media in order to gain a “big picture” perspective on how she has been portrayed. It will break down various signs and patterns used to illustrate Boudica and decide whether or not there is a definitive visual “code” for her and will also critically analyse how that fits into broader gendered codes for later prehistory. The Boudica code will also form the basis for a discussion on whether or not portrayals of Boudica subvert or adhere to the broader stereotype of the Celtic Warrior.

### **How to Make Prehistory Attractive: Women’s Representation of Bronze and Iron Ages**

**Caroline Trémeaud** (Université Paris 1 Panthéon Sorbonne / UMR 8215 Trajectoires, Paris)

Archaeologists have used human representations in scientific publications to depict societies, especially for Bronze and Iron Ages. In such publications, female representations were often stressed, and a very interesting evolution, in terms of gender

perception, can be highlighted. From the examination of some front pages or posters, we will analyze the different types of pictures, confronting advantages and limits of graphic choices. We will then compare these visions with the few pictures emic (from these societies themselves) we know. These elements will bring arguments to question the use of these pictures, which were made by archaeologists and for archaeologists.

### **The Reconstruction of Gender Roles in Exhibitions of Palaeolithic Archaeology**

**Gabriele Zipf** (Lower Saxony State Service for Cultural Heritage, Hannover)

Archaeological exhibitions are obliged to make use of specific illustrations or sculptures to create emotional, and hence memorable, images of the past. This often produces stereotypical images of gender roles. To avoid this, the scientific models on which the images are based must be consciously questioned and tested and each stage of planning and implementation must be closely examined alongside the artists. This process will be traced using the example of the permanent exhibition on the Schöningen spears, the oldest hunting weapons in human history (300.000 years old), in the new museum and visitor center in Lower Saxony (Northern Germany): the paläon.

### **“Prehistoric” Gender Images? Analysing the Representation of Gender Relations in Archaeological Exhibitions**

**Kerstin Kowarik** (Natural History Museum, Vienna), **Jutta Leskova** (Upper Austrian Museum, Leonding)

The project “Prehistoric gender images” analyses the representation of gender relations in archaeological exhibitions. It raises three basic questions: 1) What concepts/ideas/images are presented to the public? 2) Where do they differ? 3) Where lie the similarities? In the course of the project 13 permanent exhibitions on European prehistory in Austrian museums will be investigated. Analysis focuses on: • Graphic reconstructions of prehistoric life such as life scenes and technological reconstructions • Text The graphic analysis is based on B. Röder’s work on prehistoric life scenes. For text analysis Ph. Mayring’s method for qualitative content analysis is used. Preliminary results of seven investigated museums show a rather clearcut and expected pattern emerging: quantitative underrepresentation of women and stereotyped role representation with highly “typical” males. But also unexpected aspects mainly relating to the representation of women are to be noted. Stereotyped females performing typical female tasks seem to be virtually absent from the picture. This is somewhat surprising. The present talk will also seek to explore whether observed differences in the representation of gender roles can be related to different kinds of presentation media such as text vs graphics, 2D vs 3D or life scenes vs technical reconstructions.

### **Women’s Image in Spanish Archaeological Museums during the Last Decade. A Gender Perspective**

**Lourdes Prados-Torreira** (Depart. Prehistoria y Arqueología, Universidad Autónoma de Madrid, Madrid), **Clara López-Ruiz** (Universidad Autónoma de Madrid, Madrid)

Our presentation will focus on analyzing, from a gender perspective, some women images illustrating the historic discourse in Spanish Archaeological Museums, opened or renovated in the last decade. We will focus on showing some images, (women working in cave paintings, weaving, grinding, taking care of children, etc.) in order to analyze how women are represented, what roles are attributed to them within the collective community and how the gender relations in past societies are actually shown to museum visitors. This study is part of the research project “Discrimination of women: the origins of the problem. The social and educational function of the archaeological museums in the fight against gender violence”, funded by the Institute for Women’s Ministry of Health, Social Services and Equality of Spain.

### **Gender in the Mine - New Images and Concepts for the Prehistoric Salt Mines in Hallstatt**

**Hans Reschreiter** (Natural History Museum, Vienna), **Doris Pany-Kucera** (Department of Anthropology, Natural History Museum Vienna, Vienna), **Dominic Gröbner** (Chemin de Caragiutti 20213 Folelli, Penta di Casinca, Corse)

Heavy physical labour is commonly associated with male labour. This conception is frequently transferred to our interpretation of the past and visualised in exhibitions and „archaeological life scenes“. Many of these images suggest that, throughout the millennia mining was carried out almost exclusively by adult male workers. Archaeological finds and recently conducted anthropological investigations on children and juvenile remains from the Hallstatt cemetery have challenged the existent model of age and gender distribution of the workforce in the salt mines. The results of the anthropological analysis suggest that children and juveniles were actively taking part in the mining process alongside adult women and men. The newly created life scenes depicting prehistoric mining in Hallstatt aim to visualise and discuss these ideas. It is important to note that these life scenes do not only represent important means to communicate research results in exhibitions and books but actually represent the graphic transposition of a highly complex and detailed scientific model. These images question the commonly accepted model of gender roles in the context of prehistoric mining and invite discussion about our concepts and ideas. The inversion of roles and the deliberate exaggeration of certain aspects were used as means to instigate discussion.

## **Make People of Past Times “Alive” - A Tour through the Museum of Heilbronn**

**Christina Jacob** (Städtische Museen Heilbronn, Heilbronn)

How can we make people “alive” in our expositions? I will give three examples from the Merovingians, the Bronze Age and the Stone Age: one male, a group of women and four families.

## **The Representation of Gallic and Celtic Women. An Iconography Fixed in History**

**Chloé Belard** (Ecole Pratique des Hautes Etudes, Paris)

This presentation intends to demonstrate the static characteristic of Gallic and Celtic women’s representations through various pictures which could be dated from the nineteenth century to nowadays. Indeed, Iron Age women are represented according to three main themes in museum displays and popularization works : the « feminine » woman, the « good wife » and women in domestic sphere as opposed to men in public realm. Actually, these themes, developed from the nineteenth century, stem directly from the Greco-Roman ideology and antique texts. So, after the recognition of these stereotypes, women’s representation, which shows through archaeological and funeral remains, can be observed with more consideration. Women’s image perceptible through funerary data, especially in Champagne, is totally different. In fact, gender archaeology allows to deny this ideological approach of Iron Age women’s social roles.

## **Alix and the Portrayal of Gender in the Late Roman Republic**

**Côme Ponroy** (Department of Archaeology, Durham University, Durham), **Ophélie Lebrasseur** (Department of Archaeology, Durham University, Durham)

Comics based on historical themes are particularly powerful tools in conveying ideas about the past and can subconsciously affect our understanding of it. ‘Alix’, a popular French comic series created in 1948 by Jacques Martin, has inspired many a child and archaeologist-to-be in the study of the past. Set in the late Roman Republic, the adventures of Alix take the young Gallo-Roman across the Roman World from Gaul to Asia Minor and see him play a major role in historical plots alongside relevant historical figures. Critically acclaimed for its historical accuracy, a spin-off series called ‘Les Voyages d’Alix’ aims to explore culture in Antiquity through the medium of the characters, making archaeological discoveries and history easily accessible to children and adults alike, providing an important platform in the portrayal of Antiquity and its associated themes. In the following paper, we will use the main albums and the spin-off album ‘Le Costume Antique’ to review the presentation of gender to the wider audience. We will attempt to understand the reconstruction and portrayal of gender through the characters and plots taking into account publication laws and views in our modern times. Finally, we will evaluate its impact on children and adults.

## **Gender, Images, and Prehistory at School. Visual Representations and Gender at the Prehistory in Spanish School Textbooks (1939-2012)**

**David Javaloyas** (University of Balearic Islands, Palma), **Alejandra Galmés Alba** (Complutense University of Madrid, Madrid)

Schools are one of the most important ways to divulge prehistory among society, and textbooks have traditionally been one of the main teaching strategies in it. Therefore, they are an essential source of information in order to study how the research on prehistory is translated to a general public. History textbooks present specific formats combining written discourses, didactic exercises and several types of images, including artistic representations, to facilitate the acquisition of (pre)historical knowledge by the students. This paper will explore the visual representations of prehistory present in textbooks used at Spanish schools from 1939 to 2012. First, it will analyze the specific ways used to mark gender differentiations between individuals, mainly through body treatment and the performance of explicit activities. And, second, it will consider the iconographic strategies behind those images. Visual representations of gender roles included in textbooks have been changing through time, but, frequently, they have exceeded the limits of scientific discourses by filling the gaps with gender stereotypes. This implies that the study of prehistory has lost some of the potential to undertake gender inequalities at the present replacing a changing view of gender relations through history by a static vision that reproduces present ones.

## **Bulging Muscles, Berserk-Rage and Armour Fetishism: The Representations of Medieval Knights and Viking Men in Illustrated Non-Fictional Books for Young Readers**

**Katja Fält** (University of Jyväskylä, Jyväskylä)

Representing history is seldom neutral or free from value judgement. In a similar manner, representing historic gender is seldom neutral or truly objective; rather it is closely connected to values and ideologies prevailing in the culture. Notions about historic gender are also constructed and passed on via various visual means. This visual aspect of constructing historic gender can work in order to aestheticise and idealise the past. The paper focuses on the ways historical masculinities, those of medieval knights and Viking men are represented in illustrated non-fictional books intended for young readers.



The presented examples have been taken from selected non-fictional books that aim to give general information about the life and historical surroundings of medieval knights and Vikings, all published within the past twenty years. The paper aims to examine how illustrated non-fictional books construct, imagine and visualise historic gender. By analysing the representations of gender in these books it is possible to understand how the concept of medieval and Viking (male) gender influences on and maintains visual representations and how these representations further enhance the ways young readers are gendered within cultural discourse.

### **Is It All Warfare and Treasure Hunting? Gender Roles and Representations in Video Games**

**Rachael Sycamore** (Durham University, Durham)

Video games are now one of the most popular mass media across the world and there exists a considerable corpus of games that involve ideas about archaeology. However, they have received very little attention from archaeologists interested in how archaeology and past societies are represented. It is widely acknowledged that gender stereotypes exist within video games and that certain themes, such as warfare, dominate the games available. To what extent these issues affect the games related to archaeology is unknown, hence, we do not know how people's expectations of archaeologists and understanding of past societies is being manipulated. Once these representations and any problematic aspects have been investigated; our interactions with the public can be developed with an understanding of their preconceptions developed from these popular media. This paper will investigate a selection of video games to understand how gender is presented and manipulated within the different virtual environments. It will then be discussed how these representations can be used in our interactions with the public and what they indicate about societal views of archaeology.

### **"It has always been like that..." How Televised Prehistory Explains What is "Natural"**

**Georg Koch** (Centre for Contemporary History Potsdam, Potsdam)

In times of uncertain future prospects during the 1970s, neither religion, nor politics, history or philosophy were able to satisfy human needs for identity and orientation. Furthermore they did not give the desired answers to philosophical questions about what it means to be a human, or about the relation between human and nature. Notably television searched for these answers in palaeoanthropology that is considered by the general public as a science that could provide answers, by means of natural scientific methods, to questions relating to culture anthropology. And this also included questions about the relation between man and woman, which is staged in re-enactments in prehistoric documentaries. These documentaries about our furthest ancestors do not only represent self-images of modern societies, but an idealized image of gender relations and 'the way it should be'. Up to the point where many people find 'evolutional' explanations for gender conflicts in modern productions. In my lecture I would like to give an insight into gender constructions in prehistoric TV documentaries. Using selected movie examples, I will explain how contemporary concepts were projected into prehistory and how the Stone Age became not only a mirror but also a explanation of the present.

## **POSTERS**

### **What Did Women and Men Do in Prehistory? Gender Roles Represented in Children's and Students' Books**

**Kornelia Kajda** (Institute of Prehistory at Adam Mickiewicz University in Poznan, Poznań)

Even though gender studies have been developing in many countries and the awareness of cultural and social construction of sex is wider, archaeology has still much to do in this field of knowledge. In professional journals and books there is wide theoretical consideration on the prehistoric gender roles. Moreover, some researchers still correct the stereotypes that govern some visions of the past. Nevertheless, the situation is different when it comes to representations of gender roles in books for children and students. There still prevails the traditional approach in which in the past only women took care of children and man hunted and brought food to home. In the poster I would like to show how gender roles are represented in the books about prehistoric societies that are destined for Polish students and children. I want to focus on the pictures and excerpts from books that present the daily performances of women and men. I would like to show what the picture of typical prehistoric woman and man is, and how it can influence children's and students' perception of gender roles in the contemporary society.

### **Male and Female, Young and Old - Reconstruction of Early Medieval Society and Display Strategies in Museum Exhibitions**

**Kirsten Eppler** (Landesmuseum Württemberg, Stuttgart)

The poster will present the visual reconstruction of early medieval society in south-west Germany on display in the newly constructed permanent exhibition of the Landesmuseum Württemberg. Life sized silhouette cut outs combined with au-

thentic excavated grave goods are arranged in pyramid form: boy - girl poor man - poor woman old man - old woman average man - average women elite man - elite woman The presentation tries to visualize research ideas about gender and age reconstruction according to early medieval written sources und archaeological excavation records of the 6th century AD. Graves of male individuals are equipped with weapons and sword, graves of females with jewellery and other accessoires. Precious goods are standing for higher status. But weapons are absent in old mens graves although buried with other valuable items. The silhouettes depict size and posture of the individuals but are lacking facial feature. The more "elite" the taller and more self-confident the silhouettes on both sides, men and women. The poster questions if it makes sense to present gendered images in the way of a men-women dichotomy. Or if it's rather confusing and cementing images of a gendered past, that might have never existed the way the illustrations shows?



## **T06S020 - "BINARY BIND": DECONSTRUCTING SEX AND GENDER DICHOTOMIES IN ARCHAEOLOGICAL PRACTICE. 20TH EAA AGE SESSION**

**Organizers:** **Lara Ghisleni** (University of Wisconsin-Milwaukee, Milwaukee), **Alexis Jordan** (University of Wisconsin-Milwaukee, Milwaukee), **Emily Fiocoprile** (University of Bradford, Bradford)

Gender theory in archaeology has moved beyond simplistic binary and essentialist sex/gender systems, but these approaches have remained difficult to ground truth archaeologically. The goal of this session is to reconceptualize the role of sex/gender binaries in defining analytical frameworks, aiming to develop approaches capable of responding to the complexity of gender theory in actual archaeological practice. We welcome rigorous theoretical engagement but want to emphasize implementation of theory in interpretation. We invite participants to rethink the analytic categories that frame archaeological reconstructions of gender, exploring how binary concepts of gender and methodological determinations of sex condition interpretation of archaeological variability. How valid is a sex/gender binary as an entry point? What alternatives are there? How do we move from sexing skeletons in a binary framework to understanding gender variability archaeologically? How non-essentialist can we be? Are we imposing contemporary concerns with binary categorizations onto past societies? Problematic assumptions have been particularly salient in: • The division of labor • Gender in mortuary contexts • Gender as a principle of social organization In a sense, the root of our question is procedural: What assumptions about sex/gender are valid a priori, and to what extent do the data condition the approach?

## **ORAL PRESENTATIONS**

### **Why We Need a Feminist Methodology**

**Anna Gatti** (Uppsala University, Uppsala)

The aim of this paper is to discuss the challenges of feminist- and gender theory in archaeology today, in particular the implementation of theoretical insights into archaeological practice. Is it possible to rethink analytical categories, such as woman, man, sex, gender and sexuality, without losing contact with the archaeological contexts? I will show that it is possible but that it demands more careful use of theory and methodology. A suitable methodology can allow us to think anew while let the rethinking of archaeological categories stay firmly based on the archaeological source material. The urgent need for a feminist methodology for rethinking basic archaeological categories will be exemplified from the viewpoint of burials in Late Bronze Age and Early Iron Age, Sweden. Burials are still a basic analytical category in the archaeological discourse and believed to contain general information about prehistoric societies. Graves and burial rituals are understood as a general representation of society. Taken-for-granted assumptions of sex and gender to the concept of burial further limit interpretation and the possibility for alternative discourses of the past to be recognized.

### **Gender in Archaeology—Investigating the not already Known**

**Cecilia Lidström Holmberg** (Uppsala University, Uppsala)

The focus of this paper is on the links between gender, practice and identity. Using Stone Age contexts, it examines more specifically the concept of gender as it may be related to and represented in these remains. Feminist theory has moved science beyond binary sex/gender systems and heteronormative views on sexuality. Yet, mainstream archaeology, including some gender archaeology, continues to impose binary systems of gender onto past contexts. Archaeological classification and reconstruction often reproduce a dualistic way of thinking people and things. Models often presume the existence of a division of labour upon sex. Gender and gender analyses, however, is not sex and not about sex as we know it. A binary sex/gender system is indeed central to our modern world-view. Relational systems of practice, however, give structure and meaning to the world in specific ways and the formation of identity depends on these systems. If we really want to understand past people and contexts, then, gender must be posed as a question. If not, we will not succeed noticing what the archaeological contexts might tell us in terms of identity formations. The past may be very different from the present.

## **“Seek, and ye shall Find”. Looking Beyond Binary Gender in Cemeteries from the South-East European Late Neolithic/Early Copper Age**

**Susan Stratton** (Cardiff University, Cardiff)

The gender conceptions of the Late Neolithic and Early Copper Age of south-east Europe have been archaeologically firmly placed in a binary system, based on the modern Western understanding of gender based on biological sex. Such assumptions have led to the analysis of cemetery remains categorised with binary gender systems, including differences in body position and types of grave good. The gender of tool types is further influenced by modern concepts: men were buried with axes, women with needles. However, re-evaluation of evidence from Durankulak cemetery on the Bulgarian Black Sea coast indicates that such interpretations may ignore data which point to more complex gender relationships. While we may accept that the potential for gender/sex categories goes beyond the binary, archaeologically we are hindered by the available evidence. Archaeological gender studies start with the biological sexing of individuals as the only way into a past society's gender system. It will be argued that any approach that starts with this binary is likely to be biased, and that large-scale data sets such as cemeteries should be investigated using multivariate statistical techniques to uncover a variety of horizontal social categories and roles, of which gender may be a part.

## **Emergent Identities in Archaeology: Persons, Practices, Pedagogy**

**Hannah Cobb** (University of Manchester, Manchester), **Karina Croucher** (University of Bradford, Bradford)

In this paper we will draw upon process philosophy, and assemblage theory specifically, to consider how we might undercut the various binaries of gender and sexuality in archaeological practice, and particularly in our teaching. We argue that taking an assemblage theory approach enables us to look at the multiplicity of identities of those practicing archaeology as different and intersecting assemblages that bring one another into being through their connections at different scales. In particular, in this paper, we will examine how this approach can be applied to archaeological pedagogy in order to start to move away from modern binary distinctions about sex and gender identities from the «bottom up», fostering an approach in our students that will then go on to be developed in professional practice.

## **Queering Sex, Gender and Sexuality in Archaeology**

**Enrique Moral de Eusebio** (Universidad Complutense de Madrid, Madrid)

The aim of this text is to question under a queer perspective the traditional use in archaeology of binarisms related to sex, gender and sexuality, as well as to show the disadvantages of employing terms such as third sex/third gender so as to avoid those binarisms. For that purpose, we will use arguments taken from Queer theory as well as ethnological evidence in order to expose that sex has always been a discursive category socially constructed, instead of an unchanging anatomical reality, and thus it shouldn't be constricted by the male/female/third-sex scheme. Likewise gender shouldn't be employed as a contingent term, as it isn't a set of features that may be gathered around the masculine/feminine/third-gender categories. By contrast, it might be seen as a variable condition in which many social fields are entangled beyond the anatomical sex. In addition, concerning the study of past sexualities, archaeologists should elude the homo/heterosexual binarism (both terms coined during the second half of the 19th century), as historical and ethnological evidences prove that sexuality is not only regulated by the gender of the object of desire, but by some other notions such as ethnicity, age, class, that lead to a huge and varied spectrum.

## **Binary Bind in Egyptian Archaeology: The Case of Hatshepsut and Akhenaten**

**Uroš Matić** (University of Münster, Münster)

Binary bind in archaeology can be on one side understood as an a priori assumption of a two gender system in a certain society or on the other side as a binary sex/ gender system taking sex as strictly biological and gender as socio-cultural. Both are however criticized by queer theory as two sides of the same coin of the heteronormative discourse and are indeed structured structures functioning as structuring structures (sensu Pierre Bourdieu). This paper will discuss the role of these heteronormative structures in interpreting archaeological record taking the representations of Egyptian New Kingdom rulers Hatshepsut and Akhenaten as two case studies. What different authors dealing with these representations often emphasize is either the gender change in the case of Hatshepsut or gender ambiguity in the case of Akhenaten. The problem is that these ideas, based on the observations of the visual and written evidence, are then sometimes transferred by the modern scholars from the representations to the bodies of the represented. This paper will approach the representations in question as „extended bodies“ (Actor-network theory) which allow other forms of gender existence beyond the boundaries of the corporal but within the boundaries of Egyptian decorum.

## **Sexed Skeletons, Gendered Bodies: Combining Bioarchaeological and Mortuary Analyses at Mokrin and Ostojicevo (2200–1600/1500 BCE), Serbia**

**Katherine Haas** (University of Pittsburgh, Pittsburgh), **Lidija Milašinović** (Narodni Muzej Kikinda, Kikinda)

Mortuary analyses of Central European Bronze Age societies have promulgated the notion that these cultures conceptualized gender as a binary category synonymous with biological sex. This conclusion is based on the observed orientation of bodies in graves, with males and females oriented in opposite directions relative to one another. Demographic reconstruction based on bioarchaeological analyses of individuals buried at Mokrin and Ostojicevo (ca. 2200-1500/1600 BCE), Serbia, challenge assumptions that equate sex with gender solely on the basis of mortuary variables (e.g. grave goods, body orientation). Here, we consider how material culture and body treatment reflect non-static categories of gender identity, status, and social relations, and how material representations of these categories are modified throughout the life-course. We also consider how manner of death and social age at time of death impact mortuary treatment of the deceased. Finally, we present evidence for alternative gender categories and roles (e.g. males buried in 'female orientation' and vice versa) and how these 'reversed-gender' burials provide insight into the roles of third and fourth gender individuals in the Bronze Age.

## **Belts vs. Blades: The Binary Bind in Iron Age SW Germany Mortuary Contexts**

**Bettina Arnold** (University of Wisconsin–Milwaukee, Milwaukee)

This paper will present data from an area of Europe in which Iron Age populations (700-450 BC) marked an interconnected set of social roles in dress and adornment, some of which appears in the mortuary context. At first glance there appears to be a dichotomous system of gender marking, but closer examination reveals important ambiguities. Edged weapons, whether spears, daggers or swords, are typically found with the skeletal remains of males, but there are exceptions. Even more problematic, weapons are also status markers and most males are buried without them, leading to a phenomenon that can be referred to as the "amazing invisible man" in cases where skeletal preservation does not allow sexing. Gender also intersects with age in ways that appear to suggest a "feminization" of children's dress and adornment in which the default assemblage is female; children are never found with weapons and their adornment is essentially "female"/not-male. The complex interdigitization of gender with other social roles in mortuary contexts suggests that our interpretations of the Iron Age burial program in this region must be correspondingly flexible and able to accommodate a menu of non-binary options.

## **Her Mirror, His Sword: Unbinding Binary Gendered Assumptions in Iron Age British Mortuary Traditions**

**Alexis Jordan** (University of Wisconsin–Milwaukee, Milwaukee)

Within the European Iron Age swords are linked to concepts of elite/warrior status, manhood, and power while mirrors have more generally been associated with female cosmetic functions, elite status, and womanhood, though their potential connection with prognostication is increasingly debated. In Iron Age Britain (800 BC-AD 43), these items appear as uncommon grave goods that crosscut tribal divisions. When skeletal sexing was possible, graves containing swords exhibited male and those containing mirrors female morphological characteristics, leading to the long unconfirmed assumption that sword and mirror burials were the male and female high status equivalents. At the site of Bryher, Hillside Farm, on the Isles of Scilly off the coast of Cornwall, an Iron Age cist grave was discovered with a number of exceptional artifacts including an iron sword, bronze scabbard, and a bronze mirror. Though the human remains could not be sexed, the mixed burial from the Scilly Isles indicates a much more complex and polysemic use of these items. Only through the problematization of the binary gendered assumptions regarding swords and mirrors can we begin to explore their contextually dependent and potentially variable functions as markers of social status, wealth, occupation, and/or possibly variation in gender roles.

## **Forging Lives, Weaving Tales: The Making and Mourning of Gendered Identity in Iron Age East Yorkshire**

**Melanie Giles** (University of Manchester, Manchester)

This paper explores how gender in the Iron Age may have been conceptualised, performed and commemorated, through the case study of the East Yorkshire square barrow burials (UK). Taking a biographical approach, it uses the evidence of both osteological data on sexual difference, appearance and life history, alongside suites of material objects and their own life-histories, to explore patterns of similarity and difference within these communities. It will propose that whilst both men and women held positions of authority within these groups, gender differences were being conjured through subtlety different metaphors of transformational power. The paper will also point to the importance of archaeological visualisations in the 'telling' and dissemination of such ideas.

## **Identifying Female in the Halaf: Prehistoric Agency and Modern Interpretations**

**Ellen Belcher** (John Jay College, City University of New York, New York)

How should the many representations of overt female imagery from prehistoric village communities be understood and analyzed? Many have suggested that we should interpret representations of prehistoric womens' bodies as universal sym-

bols of divine motherhood, fertility and domesticity. Did these interpretations arise from analysis of social identity, belonging and embodied practices learned from excavated assemblages or are they influenced by modern understandings of gendered binaries? This paper will reflect upon the sources and presentation of the 'Mother Goddess' interpretation for prehistoric Near Eastern female imagery, particularly a corpus of figurines excavated from sixth millennium settlements in southeastern Turkey, northern Syria and northern Iraq from the Halaf tradition. These figurines record imagined bodies featuring prominent and adorned parts presenting a broad spectrum of gendered iconography that is often explicitly female but sometimes vaguely male. An analysis of the figurine data will be presented which suggests that these figurines served to engender social belonging by performing Halaf lived embodied practices, sexual agency and communal identity rather than the worship of divine matriarchs.

### **Cut the Cord—Scissors and Sorcery in Viking Age Sweden**

**Anneli Sundkvist** (Societas Archaeologica Upsaliensis, Uppsala)

The focus of this paper is on female gender identity or rather the spectrum of femininities in Viking Age (c 760 – 1060 AD) Scandinavia. Shears and scissors in women's graves in Sweden have long been considered pieces of personal equipment, connected to textile production. Despite the fact that many scissors are richly decorated, expensive objects, common in graves of women interpreted as *völvor* (powerful sorceresses and soothsayers), scissors have gained little attention. In general, they have been regarded as a group of simple, practical tools without symbolic value. Furthermore, the conventional view of Viking Age women is focused on 'the lady of the manor', an aristocratic woman in charge of house and home. This convention provides little space to develop and problematize neither the buried women nor their equipment. Leaving these traditional, simplistic interpretations behind us, there are several reasons for re-thinking the role of scissors and the women buried with them. In this paper, I will discuss the complex value of scissors in connection with aspects of gender, the *norns* (goddesses of faith), arguing that Viking age femininities are plural and connected with bodily transformation.

### **Feeding the Community: Women Participation in Communal Celebrations, Western Sicily (8th-6th Centuries BC)**

**Meritxell Ferrer** (Stanford University, Stanford)

Most of the works devoted to communal ritual spaces of Sicilian Iron Age have stuck mainly to describe both their architectures and those artifacts registered in them. However, in the realization of this practice is seen some bias. On one hand, they have traditionally emphasized certain foreigners materials or elements. On the other hand, they have tended to give greater importance to those objects that archaeologists have been considered as "exceptional". The return of this selective practice is that other artifacts don't consider as "extraordinary", but also present in these spaces have long been dismissed and undervalued. This is the case of all those objects that are directly related to the domestic sphere. The invisibility of these objects has led to validate a biased glaze over these ceremonies where only could participate male elites actors. In response to these androcentric discourses the main aim of this communication is to recover the agency of certain women in the development of these communal celebrations and to show their importance in the construction and representation of a sense of community that was created through these ceremonies through the study of these long forgotten household objects.

### **Negotiating Body Scale: Some Examples from Scandinavian Viking Age Imagery**

**Elisabeth Arwill-Nordbladh** (University of Gothenburg, Gothenburg)

In Scandinavian Viking Age representations of human bodies appear both as miniatures and as full scale or even bigger images. Small human images of precious metal and big images of figures on for example rune stones in the landscape indicate that the body was a theme to process also from the perspective of scale. In this paper a gender perspective will be applied on some examples of Scandinavian representations of bodies of different sizes.

## **POSTER**

### **The Condemned Man? An Osteological and Criminological Analysis of the Sex and Age Imbalance in Anglo-Saxon Cemeteries**

**Michelle Williams-Ward** (University of Bradford, Bradford), **Jo Buckberry** (University of Bradford, Bradford)

Anglo-Saxon execution cemeteries are well established as isolated locations utilised for the atypical burial of executed social outcasts. Investigations into the demography of those interred is largely site-specific and thus fragmented, yet suggests that these populations were dominated by young adult males, perhaps implying a gender-mediated difference in offender behaviour and differential punishment. By adopting a multi-disciplinary approach, combining osteological analysis with archaeology, theoretical criminology, law and gender studies, data was collated from eleven execution sites and compared with three community sites (n= 1320). Results showed that the argued preponderance of young adult males was significant (P<0.001), with the exception of one site: South Acre, Norfolk. Comparisons with modern crime data, revealed that modern



sex and age ratios paralleled those established from execution cemeteries. Young adult males appear to have been subject to differential socialisation and social expectations. Whether perpetuating the social ideologies of masculinity and patriarchy, or as victims of the male-dominated social hierarchy and a biased legal system, or as opportunist criminals, Anglo-Saxon young adult males appear to have had a greater propensity to commit crime and documentary evidence indicated they were subjected to a greater number and harsher punishments, including the death penalty, most commonly for theft.



## **T06S021 - COINS IN CHURCHES: NEW PERSPECTIVES ON ARCHAEOLOGICAL FINDS IN MEDIEVAL SCANDINAVIAN CHURCHES**

**Organizers:** Jon Anders Risvaag (Norwegian University of Science and Technology, Trondheim), Håkon Ingvaldsen (University of Oslo, Oslo)

Ecclesiastical architecture, art and liturgy formed the physical and habitual framework in which parishioners approached altars, saint's shrines and crucifixes with their offerings. In medieval Europe coins became a universal token in the economy of salvation and were trusted as a material mediator between Man and God in search for salvation. The search for eternal salvation was deeply rooted in individual beliefs in medieval Christian Europe. In Scandinavia more than 50,000 coin finds have been made in 250 medieval churches which form the basis of the study of the relation between religion and money in Northern Europe in the 11th to 14th century. The project Religion and Money: Economy of salvation in the Middle Ages is based on interdisciplinary and international cooperation using material culture as evidence collected from museums in Denmark, Norway, Sweden and Finland. The session will strive to illuminate and debate people's perceptions and use of money in relation to religion within a medieval Christian universe. Utilizing the Middle Ages as a laboratory we will observe interactions between individuals, groups of people, and secular and ecclesiastical institutions, as well as how this world interacts with the next, temporal with the eternal.

### **ORAL PRESENTATIONS**

#### **Coins in Churches**

**Martin Allen** (University of Cambridge, Cambridge)

Comparative data from medieval England Coin finds are much rarer in excavations of medieval English churches than in Scandinavia, due to different building traditions (such as the greater use of wooden floors in Scandinavia), but there is archaeological and written evidence of votive deposits in England, at shrines and in other contexts, which can provide valuable comparisons with Scandinavia. Coin finds from the areas around church buildings in England provide evidence of pilgrimage and commercial activities centred on the churches. The principal sources of data for this investigation are excavation reports, metal detector surveys of the areas around church buildings (such as Bromholm Priory and West Acre in Norfolk), the Portable Antiquities Scheme (PAS), and the published financial accounts of cathedrals and other major ecclesiastical institutions.

#### **Coins in Churches vs Coins in Society**

**Jens Christian Moesgaard** (The Nationalmuseum of Denmark, København)

Thousands of coins have been retrieved in church floors in Denmark during systematic surveys since the 1950s, whenever churches were concerned by building activities. Among the finds, there are many late medieval bracteates, predominantly German. On the other hand, thousands of coins have been recovered in plough fields by amateur metal detectorists since the 1970s and recorded by the National Museum in the very fine collaboration with the amateurs. Among these finds, bracteates are relatively rare. Is this due to real differences in former times? Did people select specific coins for use in churches? Or is the difference the result of different survival conditions in the relatively protected church floors vs the very exposed plough layers? Coins retrieved by amateur metal detectorists from Ulv and Oldrup redundant churches which have since long been turned into arable lands give a unique opportunity to reexamine this feature and to find out whether the same coins were used in churches and in society.

#### **Artefacts in Church Floors – Why and How They Got There**

**Henriette Rensbro** (National Museum of Denmark, København)

The stores in the National Museum of Denmark contain ten thousands of objects from church floors. Among these comprehensive collections are coins, buckles, pottery, clay pipes, window glass, nails, and more. Most objects date from 11th century to recent times. Coins have always received the most attention from archaeologists, numismatists, and church caretakers. The most ruthless construction works were carried out in the 1940s to 1960s and the largest excavations in the 1950s to 1970s. In the early decades very often only coins reached the museum collections and information on context was

scarce. This of course has changed by the professionalization of church archeology. But it is still a fact, that coins are the kind of object from church floors that has attracted the most attention from researchers over the years. Today however it is considered too limiting for the results to examine coins isolated from other archaeological objects, which very often can help to understand why and how coins ended up in the church floors. This paper will give an overview of methodological problems and recent results of reexaminations of excavation finds from church floors in Denmark.

### **Coin Hoards in Christian Contexts**

**Linn Eikje** (Stockholm University, Stockholm)

During the period 800-1100, Norwegian silver hoards increasingly contain, and are eventually dominated by coins. This change in the content of the hoards has made them a well suited find category to reach the change in attitude towards coins as means of payment on the cost of weight silver. However, studies of coin hoards normally end at 1100. The role of the silver hoards as source of interpretation is in the next centuries overtaken by the coin finds from medieval churches. The churches themselves constitute a new context, a consequence of the wave of church building during the late 11th and early 12th century. For the period 1103-1263 half of the coins we know are found under the church floors, being the foci of other papers in this session. This paper will concentrate on the other half of the coins from this period. These coins stems from hoards, much resembling the Viking age hoards. But one important factor differs, several are found in close connection to a Christianized context; churches, graves and monasteries. These hoards probably represent another use of money than the coins from the church floors, but still in relation to religion within a medieval Christian universe.

### **The Power of Gifts to the Church: Money Offering, Meanings and Mechanisms in the 12th and 13th centuries**

**Svein H. Gullbekk** (Museum of Cultural History, University of Oslo, Oslo), **Giles E. M. Gasper** (Durham University, Durham)

The church, as both institution and the embodiment of Christian society (*societas Christiana*), developed, from the mid-11th century, an increasingly sophisticated economy, spiritually ordered and materially expressed. There is a great deal of evidence for the use of money in churches, which concerned not merely transactions between men (and women) but held additional currency, reflective of a greater transaction between man and God. Money might be offered at the mass, at the shrines of particular saints, or for particular ecclesiastical purposes. However, not all of this evidence is easy to interpret. This material, with little or no corroborative documentation will be examined in light of the liturgical celebration of the offertory, through comparison with contemporary narrative sources, and archaeological evidence from churches, exploring what money meant to the inhabitants at an individual level in north-western Europe in the 11th to 13th century, in relation to religious practice and thought and the church.

### **On the Edge of Christianity: Coin Offerings in the Churches of Northern Norway**

**Jon Anders Risvaag** (NTNU University Museum, Trondheim)

The churches of Northern Norway represent the northernmost parts of Western Christianity, the first being built as early as the 12th century. As Christianity gradually spread to the coastal area several churches were erected, especially during the 13th century as these areas were colonized. During the reign of King Haakon Magnusson (1299-1319) attempts were made to convert the Sami population of the coastal areas, seemingly with little effect. Several of the Northern churches have produced coin finds. Most finds are modest in numbers; still the coins from the church of Dønnes, Nordland County, are among the most significant Norwegian church finds. Considering the multiethnic and multi-religious features of the Northern Norwegian society several questions may be put forth; this paper will explore the following two: 1) Do the coins from the churches of Northern Norway only represent an extension of the rituals of the European Catholic Church or are there discernible differences to be seen in the material? 2) Is there any discernable connection to the material from the Sami offering sites?

### **Coins in Norwegian Monasteries. The Religious and Their Economy of Salvation**

**Alf Tore Hommedal** (University of Bergen, Bergen)

The theme monasteries and money, namely archaeological excavated coins in monastic churches, has been discussed in Europe and in other Scandinavian countries, but it has never been a topic in Norwegian church archaeology. The main reason for this is the modest existing material from the total of 31 Norwegian monastic sites from the Middle Ages. However, the coin material with its context opens for discussions on use of coins in Norwegian monasteries. The main discussion will deal with the Benedictine Nunnery of St. Mary's in Bergen ("Nonneseter"), where more than three forth of the coins seem to have been found in the choir with the contemplative nun's stalls.

## **Medieval Coins in Churches: The Western European Perspective**

**Benedikt Zäch** (Münzkabinett der Stadt Winterthur / University of Zurich, Zurich)

Medieval coin finds in churches, in most cases offerings to altars and saint's shrines in search of salvation, are on one side relicts of the coin circulation in a given place and one of the most important archaeological sources of the medieval money economy. But they are also part of the "economy of salvation" and thus "material mediator between Man and God". The material we are able to study is abundant: In Switzerland alone, more than 10'000 medieval and early modern coins in about 500 churches are a broad source for economic research in these both directions. But also in Germany, France and Belgium, there are numbers of medieval church coin finds which can be taken into account to study economic and social aspects of church coin finds and, in some well documented cases, even the habits and the "topography" of the coin offering. The paper is presenting some of the main results of this research taking into account several Western European countries and is thus trying to give complementary evidence to the Scandinavian perspective.

## **Investments for Afterlife. The Contextual Evidence of Coins from Parish Churches on Gotland**

**Christoph Kilger** (Department of Archaeology and Ancient History, University of Uppsala, Uppsala)

This paper addresses the importance of parish churches in the monetization of medieval society. With the establishment of parishes, a hierarchical church organization in the 13th and 14th century common doctrines of Latin Christendom were introduced and taught on a micro-level all over Scandinavia. Concomitantly coins gained a foothold as means of payment, means of saving and storing value on all levels of society. In this respect church finds provide evidence for the large scale handling of coins in churches and demonstrate the acceptance of coins among peasants. Coins left behind in churches not only represent the act of individuals but also signify material investments for afterlife. More than 25 000 coins have been recorded from Gotlandic churches which makes them the most prolific productive sites for medieval coins in Scandinavia and promising sites for studying money-offerings. In the paper I will present the well excavated and documented churches of Bunge and Silte and discuss how patterns of deposition might provide clues on the tension between the coins face value and its value in heaven.

## **Money, Gifts and the Church: Contexts and Possibilities**

**Rory Naismith** (University of Cambridge, Cambridge)

This paper examines how and why money was used in churches in Latin Europe between the tenth and twelfth centuries. It considers the public and ceremonial aspects of monetary gift-giving in church donations, acts of purchase in or with churches, and also almsgiving. All three have been examined extensively as separate phenomena, but together they raise important questions about the role of money in an ecclesiastical setting. Founded on the evidence of charters, saint's lives and other textual sources as well as visual and archaeological sources, this paper considers to what extent money had a place in medieval churches, and how its role varied in different periods and locations.

## **The Church, the Coins and the Common People**

**Frida Ehrnsten** (The National Museum of Finland, Cultural History Collections, Helsinki)

Regarding both the Christianisation and the monetization Finland was a latecomer compared to the rest of Scandinavia. Changes in the religious and cultural beliefs were slow and evolved gradually from the 11th to the 14th century. The use of money spread during the latter half of this time period, beginning from Åland in the west. Through the find material from Finnish churches the monetization can be studied as a phenomenon per se. As a counterpart not to be forgotten there are vast areas completely lacking in this type of finds. This reflects not only the economy, but also various cultural and social customs. On the Finnish mainland the oldest coins are found in the most densely populated areas, where local elite existed. These areas got the first wooden churches, which were often replaced by stone churches during the 15th century. Coins found under the floor boards in these churches depict the spreading of the use of coins, but do a few coins indicate that the whole society was monetized? How was the use of coins in religious ceremonies apprehended and adapted by people of different rank in the medieval society?

## **Hoarding and Deposition in Medieval Scotland; Religious Beliefs and Ritual Practice**

**Stuart Campbell** (Treasure Trove Unit, National Museums Scotland, Edinburgh)

This proposal will present evidence from medieval Scotland at a time when that country saw the increasing use of coinage in everyday life and will examine how coinage (often seen as a harbinger of cultural change) has itself a malleable identity. In Scotland evidence from hoards makes it clear that coinage and bullion co-existed for much longer than elsewhere in the British Isles, and that this allowed for a blurring of distinction between coins and other items of value. Specifically this paper will examine the relationship between coinage and certain types of silver jewellery which are also found in Scottish hoards and which carried various Christian and magical symbols. The contexts in which both artefacts and coins are found indicate they played a central role in mediating between everyday life and religious belief. The treatment of both coins and

jewellery will be analysed as popular religious practices similar to those which transformed pilgrim badges or ampulla into objects of personal significance or religious offerings. By examining questions of deposition and offerings this paper will explore how concepts of value and belief can be easily transferred from one type of object to another and transform the objects themselves.



## **T06S022 - “SEARCHING FOR THINGS”: EXPLORING THE FIRST PLACES AND SYSTEMS OF LAW AND ASSEMBLY IN NORTHERN EUROPE**

**Organizers:** Sarah Semple (Durham University, Durham), Alexandra Sanmark (Centre for Nordic Studies University of the Highlands and Islands, Orkney)

The Assembly Project, funded by Humanities in the European Area, was initiated in June 2010 and completed in December 2013. It has brought together four project partners from Norway, England, Austria and Scotland. In this session we present our combined findings. Using research and fieldwork across Norway, Denmark, Sweden and Iceland, in England, Scotland and the Northern Isles, we have explored the origins, development and transformation of administrative frameworks and meeting-places between AD 400-1500. New insights have been achieved and here papers revealing the diversity of assembly and administration in European societies, are used to establish how differing social modes of organisation impacted and interacted with each other. We examine assemblies as long-term mechanisms of social organisation; territorialisation; as expressions of collective identities; and facilitators of power and hierarchical control. By undertaking research at differing scales, from localised and intra-site to macro-level landscape survey, we investigate assembly and assembly sites as active transformative components in the formation of European political identities.

### **ORAL PRESENTATIONS**

#### **From Thing Sites to Modern Centres of Power — Norse Assembly Sites in the “Longue Durée”**

**Alexandra Sanmark** (Centre for Nordic Studies University of the Highlands and Islands, Orkney)

The work of The Assembly Project has shown that some assembly sites were used for many hundred years, while others were rather short-lived, and some seem to have been used only once or twice. Here the reasons for assembly site continuity v. abandonment will be scrutinised. An interesting aspect regarding the long-lived sites is that they do not appear to have been in constant use, but were revisited with seemingly quite long intervals. Are we missing the links or were these sites remembered in oral traditions, or perhaps marked in some way to make them stand out? Or did they simply possess certain qualities that made them suitable for meetings? The reasons for shifting assembly sites will be examined through examples from the Viking period leading up to today, e.g. from the earliest thing sites in Orkney and Shetland, Scotland to the local power centres of Kirkwall and Lerwick. Parallels will be drawn with the modern period, such as the reasons for selecting Bonn as the capital of West Germany after the Second World War, and the use of assembly sites for declarations of independence as e.g. in Norway in 1814 and Iceland in 1944.

#### **The Poles in the Holes in the Rows. The Monumental Demarcation of Old Uppsala Constructed in the 6th-7th centuries CE**

**Jonas Wikborg** (Societas Archaeologica Upsalisensis, Uppsala), **Olle Heimer**, **Ann Lindkvist**

In 2012-2013 two rows of huge postholes have been discovered at Gamla Uppsala, Sweden. Both rows are on a monumental scale, one of them spanning almost a kilometer. Remains of the wooden posts have been 14C-dated to the 5th-6th centuries CE. As yet, we do not know if they are two completely separate rows, or if they are part of one large structure surrounding one of the most important central places of Iron Age Sweden. The three enormous grave mounds at Gamla Uppsala are possibly monuments for a royal family in the 6th and 7th centuries CE, and a 50 meter long hall building dated to this period has been excavated by a separate research group. Gamla Uppsala is mentioned in early written sources as an important place for Norse religion and for jurisdiction in the Iron Age. The rows could be seen as marking out roads leading into Uppsala and/or acting as a large symbolic enclosure of it. The monument will be described and interpretations of it will be discussed in relation to the surrounding landscape and monuments, similar structures from other parts of Sweden, and written sources dealing with religion and jurisdiction.

#### **Assembly-Places: A Possible Interpretation of the Tuna Sites in Central Sweden? Starting from the Gilltuna Example**

**Anneli Sundkvist** (Societas Archaeologica Upsaliensis, Uppsala)

The tuna place-names have been intensively discussed for more than a century among Scandinavian scholars from various disciplines. The meaning of the word tuna itself is interpreted as ‘enclosure’ and connected to settlements. Apart from

small trenches, no full scale excavation of a 'tuna farm' had taken place in Sweden, which made the debate come to a stop some decades ago. This was changed in 2010 with the investigation of Gilltuna, a major settlement dated c 3rd century BC – c 1000 AD. Apart from several phases of long houses, wells, fences etc, a c 44 X 44 m enclosure, being situated in the center of the settlement, was revealed. With the Gilltuna excavation, the tuna-discussion will have new air under its wings. One earlier theory concerning the significance of the tuna settlements suggests a role as places for assembly or *ðing*. In this paper, I will discuss Gilltuna together with other tuna sites from the Mälär Valley to evaluate this theory from an archaeological point of view.

### **Assemblies and Landscapes**

**Adolf Friðriksson** (Institute of Archaeology, Reykjavik)

This paper is an introduction to a new research programme on assembly sites in Iceland (AD 850-1950), with a specific emphasis on assembly location. From the earliest settlements in the 9th century, until modern times, the role, form and location of assemblies in Iceland have changed. Fresh data from recent field surveys offer new insights into the placement of the assembly in the Icelandic cultural landscape.

### **The Regulation of Trade through the Assembly System: Case Studies from Medieval Northern Europe**

**Natascha Mehler** (Department of Prehistory and Historical Archaeology, University of Vienna, Vienna)

Attempts to regulate trade closely have been a feature of North Atlantic commerce since at least the late 12th century. Merchants were so vital for many goods otherwise unobtainable that unregulated commerce was hardly practical or, for island people, desirable. The paper will present some results of The Assembly Project which also investigated the regulation of trade through the assembly system. By drawing on examples from Iceland it will be outlined how trade was regulated in the Viking and medieval period, which was in control of it, and what the consequences were. The archaeological evidence will be discussed and contrasted with written evidence.

### **Burial Rites as an Expression of Territorialisation (Central Lithuania in the Viking Age)**

**Mindaugas Bertašius** (Kaunas University of Technology, Department of Philosophy and Psychology, Kaunas)

The graves constitute one of main resources for investigating prehistoric society in the Central Lithuania. At times, when we investigate archaeological material dated to the Migration Period and the Viking Age, we recognize special social practices which intended to consolidate contacts between members of society, to boost some kind of dialogue and to express the collective identity. In such situations social practicing (burial rituals, social events or public actions) became more clear and expressive everywhere in particular territory. Within the community it became understood by everyone, like a prayer or song. The standardization of customs was an instrument for making the new society and creating memories of new ethnicity. The resident population in Central Lithuania have manifested by preferential treatment that is very expressive in the Viking Age. The territorial (and/or political) "ethnicity" was conveyed through the very expressive rituals. Simultaneously the traits of an administrative structure were formed with chief residences and hill-forts in geographically significant points. Steady burial rites testify to stable social structures and the establishment of institutionalized religion that consolidated the group. One can detect a political component within a well-developed residence with formalized ritual.

### **Assembly Places and Territoriality in Medieval Ireland**

**Elizabeth FitzPatrick** (Department of Archaeology, School of Geography and Archaeology, National University of Ireland, Galway)

This paper investigates the relationship between assembly places and territorial boundaries in medieval Ireland, focusing in particular on the role of assembly places as cultural landscapes in which elite collective identities and affiliations to territory found their most potent expressions. Ancestral attachment and pedigree of place were integral to the assembly practices of elites in medieval Gaelic society. Centring on the period from the 9th to the 16th century, it is demonstrated that the venues chosen and revisited for tribal gatherings, for conferences of kings, inaugurations and law courts, were exceptional and often (but not exclusively) long-lived places, with distinctive topographies and funerary aspects, in which generations of elite gathering were experienced. However, assembly culture was not immutable. Deference to mythological identities arising from the pseudo-historical binary cosmography of the island, changes in territorial boundaries and the tendency for powerful families to dominate others, influenced who convened assemblies and where they were held.

### **Kingship and Landscape: Elite Assemblies in Scotland and the North-West**

**Oliver O'Grady** (Independent Researcher, Perth)

An integral component of the profound changes in political exchange and legitimization during the Viking Age was the important symbol of the royal mound as a place of assembly. This paper will explore new research into the archaeology of royal Scone, which emerged as the primary royal inauguration site in Viking Age Scotland, and situate Scone as part of the broader



picture of the development of regional identities, reinterpretations of landscapes and processes of early state formation through assembly at mounds. For six centuries, Scone was the symbolic epicentre of the processes whereby the Scottish state was formed, and where Scotland's medieval kings were inaugurated and the political community gathered. Despite this, until recent investigations by the speaker, only limited understanding of the form of the site's components had been possible. Comparable traditions in Northern Europe can now be considered in relation to the Scottish site. Mound-building for assemblies throughout north-west Europe can be regarded as forming linked monumental reference points between localities and regions concerning how assemblies should be staged. This paper is supported by a Royal Society of Edinburgh Grant and University of Stirling and contributes to a network exploring Royal Inauguration and Assembly Places in medieval Europe.

### **From Community to Society – The Thing at the Edge of Europe**

**Frode Iversen** (Museum of Cultural History, University of Oslo, Oslo)

This paper deals with the question of how vast societies were created by increased interaction amongst smaller communities through judicial cooperation. By the 12-13th century there were c. 20 law provinces in Scandinavia. What was their background and role in the formation of regional identities? This process is explored through two case studies of the law provinces of (1) Gulathing and (2) Hålogaland, Norway, covering a time span of nearly a millennium, from the 3rd to 13th century. Central to the discussion of the early phase, 3rd – 10th centuries, are the so called courtyard sites of Hålogland, providing a key material to these development in a Northern European context. This is supplemented by the case study of the Gulathing law area, which is one of few Scandinavian cases where the development can be more securely traced from the 11th to the 13th century.

### **In Search of “Things”: Assembly, Scholarship and Nationalism in Past and Present**

**Sarah Sempke** (Durham University, Durham)

Early medieval assembly has generated interest from historians, archaeologists, folklorists and place-name studies in many parts of Europe across the last 300 to 400 years. Their study in Western Europe alongside many aspects of archaeology has notably intensified at times when aspirant political and religious groups were engaged more broadly in harnessing archaeology to nationalist narratives. Precisely because an ‘archaeology’ of assembly has proven so elusive, this field of studies has often fallen prey to speculative discourses, in which concepts of space, place and function have been asserted with little evidential base. This paper concludes the session by offering a selective investigation of the ways in which the concepts of early government, the assembly and the thing have been valorised and presented since the seventeenth century to the present, and considers how assembly studies and assembly sites have played a distinctive role in the assertion of national identities. It reflects on the results of the TAP project, and sets out how these are helping shape future research methods and approaches.



### **T06S024 - MATERIALISING MEMORIES: CIRCUITS OF (RE-)CONFIGURATION**

**(Session sponsored by the Cluster of Excellence “Asia and Europe in a global context” at the University of Heidelberg, Germany)**

**Organizers:** **Thomas Meier** (University of Heidelberg, Heidelberg), **Constance von Rüden** (University of Bochum, Bochum), **Gert Jan van Wijngaarden** (University of Amsterdam, Amsterdam)

Objects are culturally constituted and laden with meaning through specific contextual webs by which they are woven into practice. In turn objects materially constitute a structure by acting as conditions of practice. By moving into different social, spatial or temporal contexts an object is re-configured in a new web of meaning. Therefore, moving objects – real, imagined or idealised – are crucial factors of transculturality: They are materialised mediators between different real, imagined or idealised cultural webs, each time (re-)configured with shifting and new meanings. As culture to a huge degree is based on remembrance, (re-)configured objects are media which transmit memories and references (Erinnerungen) to real, imagined or idealised former contexts of the object. These object-memories are driving forces in the (re-)configuration of meaningful webs within a transcultural dynamic. This session explores the mobility of objects with special regard to the conditions and transcultural formative capacities of sea-transport in a diachronic perspective. Analytical questions address the selection of objects, which are transferred into other cultural contexts, the flow of information associated with these objects, the processes and modes of reception, and the (re)ordering of memories associated with objects.

### **ORAL PRESENTATIONS**

#### **Transformative Capacities of Egyptian Decorum: Transference, Hybridization, Creativity and the Representations of Aegean Objects**

**Uroš Matić** (University of Muenster, Münster)

Diplomatic relations between 18th dynasty Egyptian court and the policies of the Aegean Bronze Age are gaining increasing scholar attention. The work conducted so far on chronological synchronization established a relatively firm base for further

discussions on social relations. The role of the so called prestige objects arriving from the Aegean to Egypt did not receive the same attention partly because our knowledge of these objects is mostly restricted to Egyptian visual representations in tombs of the high court officials and not the imported objects per se. This paper will discuss the transformative capacities of Egyptian decorum in regard to the foreign prestige objects of the Aegean provenance arriving on the Egyptian 18th dynasty court. It will be argued that we first have to understand the iconographical phenomena of transference, hybridization and creativity in Egyptian visual culture before we attempt to read any historical reality behind them. These transformative representational processes are crucial for the understanding of the reception of the Aegean provenance objects and the re-configuration of social networks in which they were embedded.

### **The Extended Aspects of Imitated Pottery**

**Jessica van der Does** (Independent researcher, Amsterdam)

Inter-regional contacts result in flows of exchanged objects. Archaeologically, such flows are documented by distribution of archaeological artefacts. These distributed products were not just randomly moving by themselves. On the contrary, it is a conscious choice by people to export and import certain objects. On their turn, 'things' carry cultural associations with them. 'Foreign' objects need to be re-contextualised and re-valuated when incorporated into their new assemblages. This change of ownership may create new cultural associations. In particular, material culture studies are assessing these changes in cultural perception of distributed objects. In this paper I will use such material culture studies to explore what happens to the immaterial, cultural notions of objects when imports are imitated. In particular, I will focus on pottery in the Late Bronze Age Mediterranean. What could be the inspiration to imitate imported pots? Why were only certain pot types or only certain aspects of vessels imitated? How do the cultural associations of locally produced imitations relate to those of true imports? My paper is an attempt to assess such questions to develop a theoretical framework to investigate cultural associations, referred to here as extended aspects, of imitated ceramic vessels in varying cultural atmospheres.

### **Transmission and (re)Configuration: Slit Stone Earring Practices in Prehistoric East Asia (c. 6000-3500 BC)**

**Ilona Bausch** (Leiden University, Leiden)

This paper explores the different "webs of meaning" in which slit stone earrings (frequently made of nephrite) figured in prehistoric East Asia. It will consider if and how the earrings took on new meaning and function as their practice was transmitted over large distances and was adopted into new cultural contexts. The earliest use of such earrings, made of light-green or white nephrite, took place in Northeastern China during the Early Neolithic Xinglongwa culture (6000-5000BC). Considering the unusual contexts in which these rare nephrite earrings are found, paired earrings were associated with those who played a leading role in Xinglongwa society, in terms of subsistence and/or ritual practices. Thus the earrings constituted one way in which Xinglongwa social and ritual structures were materialized. The practice of nephrite earrings was eventually transmitted to other parts of Neolithic China, as well as to foraging communities in Siberia, Korea and crossing the Sea to Japan, where they were copied by the recipient groups in local materials, entering different social structures. In Japan's Jomon societies, slit earrings became ubiquitous, and the mis-matched pairs in burials at the Early Jomon Kou site in Osaka suggest the materialization of interaction, rather than individual social identity.

### **Silk and "Barbarians". Chinese Silk Fabrics in Cultural Context of Nomadic Society**

**Marta Zuchowska** (University of Warsaw, Warsaw)

During the last centuries of the 1st millennium B.C. a huge amount of silk was transferred from China to the nomadic tribes living North and North-west of the border, especially Xiongnu. At the beginning silk fabrics were robbed from the Chinese farmers communities living close to the border, during short military raids, then obtained legally as gifts from the Chinese court in the frame of so called "heqin" and "tributary policy" to prevent such raids and finally - occasionally traded. Due to this processes products of substantially agricultural society found their place in the culture of nomadic tribes and got the new meaning, symbolism and function. Nevertheless, each silk object, inseparably linked to the Chinese culture had to be seen through the lens of the vision of China itself. This phenomenon opens multiple questions related to "redefinition" of silk objects in the new cultural context, their use and value – actual as well as figurative. The aim of this paper is to trace the evidence of perception of Chinese silk in nomadic society.

### **"Reconfiguring the South": Mediterranean Goods, Images and Ideas in the "Celtic" North and the Beginning of the Early La Tène**

**Thomas Stöllner** (Ruhr-University of Bochum / Deutsches Bergbau-Museum Bochum, Bochum)

A long time archaeology has dealt with the impact of Mediterranean goods in the North. In every argument Mediterranean imports played a decisive role, but more seldom the ideas that were transported with them or reconfigured by the practices conducted with them has been integrated into the scientific debate: ideas attributed to specific objects and transactions cer-

tainly acted as some kind of “leaven in the dough” that changed the Iron Age “Northerners” in their “cultural” self-awareness, consciousness and “cultural” appropriation. No matter if the rise of the Early La Tène may be considered either as logical result or as a sudden chaotic spread; it surely can be understood as a multidimensional process that integrated individual transaction experience and communal transaction memories. Re-configuring the South therefore will be discussed as the reinterpretation and embedding of memories to new ideological contexts. But the processes seem far from being homogeneous. Reinterpretation of southern rituals and iconographic pattern are one side of the coin while the integration and reinterpretation of the foreign “other” is another. But it is important to keep these levels apart. The question of spatial and social neighbourhood and their construction of foreignness provide a further theoretical model that allows differentiating the processes geographically and according to their social integration. Object biographies (in the sense of I. Kopytoff) allow detailed insight into gradual processes and the entanglement of individuals to objects. The lecture will follow three categories of meaningful objects and icons that were embedded into different practice-patterns: the use and continuous re-use of foreign table-ware and vessels of commensality, the aspects of prestigious goods and gifts (“keimelia”) as well as elements of “foreign” burial customs as part of elitist “habitus” and finally the selection of southern iconographic pattern. In the last part it will be investigated if the Early La Tène style might be considered as both the construction of the “own” and as the re-configuration of the south. By using these different categories a better understanding of the reconfiguration processes seems possible.

### **Memory Lost in Transition? “Material Resonance” of the Past in Dress Accessories of the Roman West** **Tatiana Ivleva** (Leiden University, Leiden)

‘Material resonance’ theory proposed by Antonaccio (2009) suggests that when objects appear to be re-contextualized, their original meaning is not retained, however, some may still retain particular resonance for their users. This paper by using a case study of the British-made brooches found outside the province of their manufacture, that is Roman Britain, investigates the resonance of the British past of the people who brought these items of personal adornment to the Continent. Up to now 242 British-made brooches have been identified on 103 sites across Continental Europe, and the careful analysis of their distribution indicated that these objects were brought by people travelling from Britain, in rare cases them being traders. Brooches took on and played a variety of roles outside Britain. The occurrence of them in diverse contexts shows variability and creativity in their use, function and practice within different levels of population who brought and came in contact with these objects. The paper will show how the brooches’ ‘physicality’ and ‘place of manufacture’ connected the agents (owners, viewers and makers) with their British past and how the memory of this past was the cornerstone in determining British-made brooches’ final and ultimate deposition (i.e. resting place).

### **“Antiques in Antiquity”. Materializing Time and Memory through the Reuse of Antique Artifacts in the Bronze Age Aegean**

**Katerina Kostanti** (Greek Ministry of Culture-Athens National Archaeological Museum, Athens), **Georgia Fakarou** (Greek Ministry of Culture-Directorate of Prehistoric and Classical Antiquities, Athens)

Examples of Aegean or imported artifacts, already several centuries old when re-used in a new environment, usually in burial contexts, inform us about the different mechanisms of antiques acquisition and reinterpretation. Through several cases of discovering “antique” objects in later contexts of the Aegean Bronze Age, we will attempt to examine the new value, meaning and identity of these old artifacts. Whether perceived as magical, talismanic, exotic, luxurious, curious, prestigious or just heirlooms they are objects transferred into different mental, functional, temporal or/and spatial environments, probably expressing multiple dimensions of thinking in individual or more collective level. Were the ancients aware of the “age” of their treasures? Were they trying to embellish and upgrade i.e. a burial by providing the deceased with old objects? Were antiques charged with supernatural power and therefore transformed into magical objects? Understanding the process of materializing time can provide crucial information about the perception of cultural heritage by the inhabitants of the Bronze Age Aegean and their attitude towards “historicity”.

### **In Search of Lost Time: Memories of the European Bronze Age**

**Joanna Sofaer** (University of Southampton, Southampton)

In his volume *In Search of Lost Time*, Marcel Proust famously describes how the tea-soaked madeleine that the narrator brings to his lips transports him back to the past in a way that is inseparable from the present. The involuntary memory that it provokes restores the reality of what has been abolished by time. Memories can also be fictive or imagined. In this case memory is voluntary and what matters is not so much what actually happened but what we believe to have happened. Yet memory can also lie somewhere in between the real and the imaginary, the involuntary and the voluntary. This might be described as a kind of transgenerational haunting. Archaeological objects have a particular role in the latter. They evidence the past, thereby ensuring its continuing material and social presence, yet they do not generate the kind of involuntary

memory offered by objects embedded within a personal history (like Proust's madeleine). Instead, the real and the imaginary blend together creating new memories reconfigured by each generation. In this paper I want to explore each of these kinds of memory by looking at their expression in archaeological objects and in a new artwork made by British designers Wright and Teague during the HERA-funded CinBA Project ([www.cinba.net](http://www.cinba.net)). *Odyssey* (2013) is the product of a real creative and intellectual voyage undertaken by its makers to engage with the creativity of the European Bronze Age. It was made to elicit fictive memories of an imagined sensory journey during the Bronze Age. In the context of this session, I want to explore the challenges to archaeologists in understanding the ways that memories not only reside in the haunting offered by archaeological objects, but can also co-exist in, and provoke, the new.

### **Cross-Medium Re-Materialisations? Questions Concerning Early Bronze Age Potmarks**

**Susan Sherratt** (University of Sheffield, Sheffield)

The later part of the Early Bronze Age sees the appearance at much the same time of what are often regarded as potters' marks on pottery over a widespread area of the eastern Mediterranean, in the Aegean, in Anatolia and on Cyprus. In the Levant, these already appear somewhat earlier, in the early part of the 3rd millennium. These usually consist of single signs or marks, though they are also sometimes found in groups, and (despite it being often very difficult to tell) seem mainly to have been incised before firing. The precise meaning of these marks has been much discussed, but it is usually assumed that they are indeed potters' marks, added by potters to distinguish their own pots in a communal workshop or kiln, or as 'trade-marks' of individual potters or workshops. However, this approach perhaps overlooks some intriguing or puzzling factors - in particular, the timing of their first appearance and the nature of some of the signs. The case of Cyprus is especially interesting, since these potmarks first appear along with other features of what may be called the Philia phenomenon, shortly after the middle of the 3rd millennium, and should thus probably be considered in the context of discussions as to what the Philia phenomenon represents as a whole. While some of these relatively simple marks are reminiscent of signs from much later Cypriot writing systems, other early Cypriot potmarks resemble systems of numerical notation, both as part of later scripts on Cyprus and in the Aegean and incised on 3rd millennium weights from Egypt, the Levant and the Aegean. Moreover, some of the earliest Cypriot marks are found not only on pots but also on metal objects. This contribution will pursue some of these more tangential observations further, considering aspects such as similarities between marks found on Cyprus, in Anatolia and the Aegean, the nature of the pottery on which they occur in various regions, and the question of how and why the Cypriot Philia phenomenon relates to a more widespread interconnectedness of material culture in the eastern half of the Mediterranean. It will end by making some highly speculative and tentative suggestions about the re-materialisation of meanings across radically different media over a very wide geographical area in this particularly exciting period.

### **Mediterranean Liquidity and Its Consequences**

**Andrew Bevan** (University College London, London)

One rather obvious and widely acknowledged enabler of human interaction across the Mediterranean region has been the sea itself. However, a second, far less well-rehearsed form of Mediterranean liquidity is provided by highly-processed, vertically-differentiated commodities such as oils and wines. Maritime transport containers for these fluid products in particular deserve greater attention as an unusually long-lived, globally salient and socially-charged cultural tradition. A third and final liquidity is forged by the common use of recyclable metals from a very early stage of Mediterranean history, and the apical role that metals such as gold and silver have played in almost all value hierarchies of Mediterranean material culture. We need to work harder at unpicking long-term, asymmetric flows of metal bullion across the Mediterranean, because of their considerable socio-economic impacts, their vicissitudes over time and their intriguing knock-on effects in other media. Hence this paper makes a case for looking at these unusual features of Mediterranean material life in an explicitly comparative and longitudinal way.



### **T06S025 - CHASING DEATH WAYS: NEW METHODS, TECHNIQUES AND PRACTICES IN DOCUMENTING AND INTERPRETING THE FUNERARY RECORD**

**Organizers:** **Karina Gerdau-Radonic** (Forensic and Bioarchaeological Sciences Group, Bournemouth University, Dorset), **Hayley L. Mickleburgh** (Leiden University, Faculty of Archaeology, Leiden), **Rita Peyroteo-Stjerna** (Department of Archaeology and Ancient History, Uppsala University, Uppsala), **Mari Tõrv** (University of Tartu, Tartu / Centrum for Baltic and Scandinavian Archaeology, Schleswig)

In recent years, archaeology has undergone a series of rapid developments in both theoretical and methodological approaches to death and burial. Excavation and documentation techniques such as archaeoethnology, as well as developments in bioarchaeology such as the application of aDNA analysis and other cutting edge research, has meant that human

remains are increasingly important in the field. By incorporating the growing variety of new methods, techniques and theoretical approaches used in the archaeology of death and burial, this session aims to explore new avenues for interpreting funerary behaviour systematically thorough time and space. For mapping the current state of the research in the field we are calling for papers to discuss both theories and methods in the realm of funerary archaeology. What are the methodologies from the variety of sciences that can be used in studying funerary practices? Which of them have been effective, dismissed or have gained far too little attention? What are the possibilities for bridging theory and method in the study of prehistoric funerary practices? Case studies from a variety of temporal and geographical contexts will serve as the basis for discussion of future directions in funerary archaeology.

## ORAL PRESENTATIONS

### **Grounding Theory. Cross-Disciplinarity, Empirical Evidence, and Storytelling as Processes to Understand Prehistoric Burials. A Mesolithic Example**

**Liv Nilsson Stutz** (Department of Anthropology, Emory University, Atlanta)

This paper discusses the challenges involved in the reconstruction of Mesolithic burials. These striking and often emotionally charged remains from the past are in many ways privileged sources for our insight into Mesolithic life. However, these qualities also tend to inspire creative interpretations based on assumptions made at the time of excavation and interpretation that are not always firmly grounded in empirical evidence. As powerful images of the past, these reconstructions then have a tendency to become reproduced in the scientific literature to the point of being viewed as a “truth” about the past. This paper addresses how some of these “truths” have been created and reproduced by the archaeological community. It then seeks to show how the insights provided by Archaeothanatology (previously Anthropologie de terrain) allow us to question some of these reconstructions. The paper asks what we can actually know about these burials based on the evidence that is available to us, and it ultimately seeks to raise questions about the role of the (correct) reconstruction and archaeology’s relationship to scientific evidence and storytelling.

### **Continuing Bonds: Contemporary Theories of Bereavement and Their Role in the Analysis of Mortuary Remains**

**Karina Croucher** (University of Bradford, Bradford)

This paper offers a new theoretical approach to the interpretation of mortuary remains. Drawing on contemporary sociological theories of bereavement and mourning, this paper assesses their value in the interpretation of mortuary remains, asking whether they can provide insights into prehistory, or do the distances bridged stretch too far? Using the examples of plastered skulls from the Neolithic of the Middle East, an interpretation grounded in contemporary theories of Continuing Bonds (Klass, Silverman and Nickman 1996) and the Dual Process Model (Stroebe and Schut 1999; 2010) will be offered and analysed. (Stroebe, M. S. & Schut, H. (1999). The Dual Process Model of coping with bereavement: Rationale and description. *Death Studies*, 23: 197–224; Stroebe, M. & Schut, H. (2010). The Dual Process Model of Coping with Bereavement: A decade on. *Omega* 61(4): 273–291; Klass, D., Silverman, P.R. & Nickman, S. (1996). *Continuing Bonds: New understandings of Grief*. London: Taylor and Francis).

### **Interpreting the Disposal of the Dead: Facts and Theory about Reduction Processes**

**Jennifer Kerner** (Université Paris-Ouest, UMR 7055 Préhistoire et Technologie and UMR 7041, équipe Ethnologie préhistorique, Nanterre), **Pascal Sellier** (CNRS, UMR 7041, équipe Ethnologie préhistorique, Nanterre), **Frederique Valentin** (CNRS, UMR 7041, équipe Ethnologie préhistorique, Nanterre)

The concept of provisional burial is linked to a large archaeological record in relation with grave re-opening; and also to quite a wide ethnographical tradition. As far as reduction processes are concerned, they are also linked with evidences for the association (namely the successive addition) of two or more individuals in the same grave. Is this question of the reduction process mainly different from those about secondary burial and what are the consequences of such a terminology? Is the concept of a reduction process part of a compound pattern for the disposal of the dead and what are the scope and the significance of such a burial program? Is this a mere technical process or is it an essential part of the funeral practices? What are the evidences for such an interpretation within the archaeological record? Theoretical issues and case studies from different geographical and chronological frameworks will be proposed to discuss manifold kinds of reduction processes and to address the final signification of such burial practices.

### **The (Micro)Taphonomy of Reopened Graves**

**Edeltraud Aspöck** (OREA, Austrian Academy of Sciences, Vienna)

It is frequently the case that human remains which have been buried in graves are not left to ‘rest in peace’ eternally. There are a wide range of documented historical and ethnographical reasons and circumstances for the reopening of graves. For



example, graves have been reopened as part of funerary rituals, for the removal of grave goods or body parts for symbolic reasons, as part of ancestral rites, or simply in order to be 'robbed' for materialistic reasons. Understanding the reasons behind the reopening is often limited by a lack of understanding of the archaeological record. The methodological object of my post-doc project is to develop a new taphonomy-based method for the archaeological analysis of reopened graves. In this paper I will present preliminary results of the project, focusing on the results of my fieldwork on a reopened early Bronze Age inhumation grave in Austria. A bundle of methods has been applied, including archaeothanatology, single finds recording, soil analysis (micromorphology). The suitability of the applied methods for understanding the formation and the reopening of the grave will be discussed.

### **An Archaeo-Thanatological Analysis System for Collective Burials**

**Yasemin Yılmaz** (Düzce University, Department of Archaeology, Düzce), **İsmail Bektaş** (Independent Researcher)

Complex burials have intertwined practices of single or multiple primary burials, secondary burials, and collective burials containing a large number of individuals. Such burials can only be understood by meticulous excavations and analyses. Important problems of determining the number of individuals, consequent creation of age categories, and separation of taphonomical effects arise in collective burials in which bone elements of single skeleton are found mixed and heavily fragmented due to burial arrangements. To solve these problems we tested different methods during analysis process and added new solutions. We have created an analysis system containing different categories such as archaeology, NMI, age category, sex determination, paleopathology, and taphonomy. The system grounds on the smallest fragment, but also makes it possible to compile comparable data for categories of the analysis by producing common and relatable standards for different qualities. A special computer program supports the analysis system. From data analysis to reports of statistical results, the program achieves processes in an integrated and relational manner. The material which a method and a computer program has been developed for is a complex series comprising more than 100 thousand bone fragments shaped by different burial forms, variable osteological profiles, and multiple taphonomical effects.

### **Archaeothanatology in the Lab: From Field Notes and Graphic Documentation to Mortuary Practices**

**Mari Tõrv** (Institute of History and Archaeology, University of Tartu, Tartu / Centre for Baltic and Scandinavian Archaeology-ZBSA, Schleswig), **Rita Peyroteo-Stjerna** (Department of Archaeology and Ancient History, Uppsala University, Uppsala)

Practice led approaches have risen during the last decade in the archaeology of death and burial. In this context, archaeothanatology is arguably one of the most effective methodologies to reconstruct the chaîne opératoire of past mortuary practices. This repertoire of techniques is ideally applied from the early stages of field work when human remains are involved. Yet, a growing body of studies demonstrate that this methodology can be useful in re-reading the burial record excavated decades ago. The aim of our presentation is to highlight the possibilities offered by archaeothanatology when analysing different types of data recovered during old excavations. To illustrate our case we are drawing examples from data sets constituted by written and graphic documentation with some cases of bodies preserved in blocks of wax as well. These are important museum collections that have been recovered since the 19th century to the late 20th century, that have been re-analysed using the methodology proposed by Archaeothanatology. The assemblages here presented are from Mesolithic burials in Portugal and Estonia.

### **Old Digs, New Tricks: Post-Excavation Archaeothanatology in the Caribbean**

**Hayley L. Mickleburgh** (Faculty of Archaeology, Leiden University, Leiden)

Archaeothanatology has become increasingly important in the study of mortuary practices, as it offers the possibility to study aspects of mortuary behaviour that were traditionally hard to assess. The archaeothanatomical approach entails an advanced and time-consuming forensic excavation and documentation methodology, focusing on aspects of the grave and human remains that are not always considered in traditional burial excavation methods. The development toward ever more refined excavation and documentation methodology has clear advantages for our understanding of the mortuary record, but may render information from older excavations incomparable to new data. How do we go about incorporating mortuary information from excavations in which the taphonomical data required for the archaeothanatomical approach was not a focus of investigation? Recent studies have shown that post-excavation analysis can provide valuable archaeothanatomical data, using photographs and field drawings, but since field documentation methods can vary significantly, what precise requirements are needed of excavation documentation in order to successfully use them in an archaeothanatomical approach? This paper presents case studies from the precolonial Caribbean, of excavations that were carried out prior to the broader application of archaeothanatology in archaeology, and assesses how in such cases valuable archaeothanatomical data may be derived post-excavation.

## **Thanatoarcheology and GIS Applied to the Tomb 163D of Hierapolis (Turkey, Phrygia): For a Dynamic Reconstitution of the Use of Collective Sepultures**

**Caroline Laforest** (University of Bordeaux, Bordeaux / Catholic University of Milan, Milan), **Dominique Castex** (National Center for Scientific Research and University of Bordeaux, Bordeaux), **Francesco D'Andria** (University of Salento, Lecce / Catholic University of Milan, Milan), **Frédérique Blaizot** (National Institute of Preventive Archaeology Research and University of Bordeaux, Bordeaux)

Collective sepultures are the most complex graves because they contain most of time thousands of bones which have been accumulated on a long time. To understand this heap of commingled bones, it is necessary to characterize how and when they have been deposited and then manipulated, and consequently how the funeral space has been structured. The study case presented here is a collective sepulture situated in Turkey, to Hierapolis in Phrygia: the grave 163d. Used between the 1st and the 7th century AD, it contained the rests of more than 200 individuals. From the phase of excavation, an integrated approach joining thanatoarcheology and Geographical Information System has been applied, permitting to exploit and to analyze the taphonomic and biological characteristics of 123 skeletons in connection as well as the deposits of dislocated bones. This study allowed to bring a different and more dynamic vision about paradigms surrounding the antique vast necropolises in Asia Minor: the grave is seen as a space managed death after the death, and either as a static monument.

## **Early Medieval Graves in a Roman Villa at Maastricht-Borgharen (NL)**

**Gilbert Soeters** (Municipality of Maastricht, Maastricht)

In 2008 and 2009 the Dutch Cultural Heritage Agency, the University of Amsterdam and the Municipality of Maastricht excavated some Merovingian graves in a Roman villa, near the city of Maastricht. This extraordinary combination of an early Medieval cemetery and a Roman villa was known since 1995. This site was proposed to be selected as a Protected Archaeological Monument in 2008. But, as earlier research had shown, the bones and metal finds were degrading rapidly and adequate measures had to be taken to evade further loss of information. It was therefore decided to excavate the graves and keep the rest of the site protected in situ. The excavation also had to be a pilot project for the development and testing of new technologies en methods to measure degradation at the site itself and in post excavation analysis. Furthermore, a new method of burial documentation developed by the University of Amsterdam and the Cultural Heritage Agency was tested. In this paper I will present the technologies which were applied and their utility. I will also present the new method of burial documentation. Furthermore, the combination of both aspects has given results that effect future research on this site, these too will be included in my presentation.

## **The Excavation and Removal of 500 Graves in Four Months. The Cemetery of the Protestant Hospital of La Rochelle: Recording Methods and Problems of the Study**

**Philippe Calmettes** (Institut National de Recherches Archéologiques Préventives, Bordeaux), **Fabrice Leroy** (Institut National de Recherches Archéologiques Préventives, Bordeaux), **Jean Paul Nibodeau** (Institut National de Recherches Archéologiques Préventives, Poitiers), **Vincent Miaillhe** (Institut National de Recherches Archéologiques Préventives, Poitiers)

Time constraints in preventive archeology are forcing archaeologists to improve methods of recording during the excavations. When a discovery is considered exceptional in terms of science, it is no longer subject to sample the structures to obtain a good cross but it becomes essential to record the whole, if the maximum of the structures revealed. In this case it is imperative to adapt standard methods to deposit. This is what has been implemented during the excavations, by Inrap, of the cemetery of the Protestant Hospital in La Rochelle. The diagnosis was assessed for the presence of about 800 graves. Such a search had an obvious scientific interest in areas not currently known as the knowledge of people accommodated in a hospital in the eighteenth century (health, diseases), the activity of such establishment while advances in medical and surgical are important and funerary practices in a Protestant population. We propose to present the methods, involving the ortho-photography, stratigraphy and anthropology, who helped excavate and remove a large number of burials in a limited time while recording the context in which they form register. This interdisciplinary study contributes to a better understanding of the dense and complex sites.

## **Pyres and Funerary Practices in Iron Age Sweden: Field Osteology and Experimental Archaeology at Old Uppsala**

**Emma Sjöling** (Societas Archaeologica Upsalisensis, Uppsala), **Sofia Prata** (Societas Archaeologica Upsalisensis, Uppsala)

Advances in scientific analyses of funerary remains have yielded a lot of useful data. However, a lot of information reveals itself only in the field and must be evaluated and interpreted on site. Identifying what is the result of direct human actions or indirect taphonomic processes is not easy. Participation by osteologists during excavation is extremely valuable, not just for the archaeologists in charge of documentation, but also for the specialists later tasked with interpreting the

practices and events resulting in the collected bone material. Drawing upon our experiences from the excavation of an Iron Age cemetery with preserved pyre sites in Old Uppsala, we wish to show that careful analysis of position and anatomical representation of both human and animal bones can reveal important aspects of the funerary ritual. We will also present results from full scale experiments with pyres containing objects and animals and highlight important issues and questions these experiments raise about what we think we know about the mortuary practices in this period.

### **Spatial Distribution and Taphonomic Relations of Human Remains at the Mesolithic Site Strandvägen, Motala** **Sara Gummesson** (Osteoarchaeological Research Laboratory, Stockholm University, Stockholm)

At the settlement site Strandvägen in Motala, Sweden a Mesolithic cemetery with a total 19 burials and 30 isolated finds of human bones have been excavated. The settlement, centered on a promontory at the river Motala Ström, with a view over a wide bay of Lake Vättern was established c. 7000 cal. BC. Large scale archaeological excavation has included several areas of the coherent settlement with inhumation burials located at the settlement area on a low sandy moraine hill. The burials were poorly preserved but provide an interesting comparison to isolated finds of human remains found in the water along the shoreline. Here the occupational layers continue into the water and provide excellent conditions for preservation. The isolated human remains have been found together with finds interpreted as ritual deposits. The osteological results, including taphonomic analysis of these finds and the spatial distribution of human remains provide insights on how to understand the depositional patterns and thus the handling of human remains. The retrieval of the human remains and continues osteological documentation during field work provides an opportunity to highlight the handling of human remains in an integrated and broad context not restricted to the handling of the human body.

### **Analysis and Interpretation of Funerary Records from the Middle Neolithic Pitted Ware Culture on Gotland, Sweden**

**Paul Wallin** (Department of Archaeology and Ancient History, Uppsala University, Campus Gotland, Visby)

In the Island of Gotland there are several large middle Neolithic burial grounds with great numbers of individuals buried in different positions and orientations, as well as buried individuals in some cases are manipulated after the initial burial ritual, which all together makes it difficult to get a clear overview of the situation. In addition to this condition, numbers of associated artifacts in the graves makes the overview even more complex, which always is the case with large quantities of data. A method to deal with such complicated matters is the multi-varied Correspondence Analysis. Of course, such methods do not give us secured answers, but it helps out in making comparative analyses. It also provide suggestions to similarities and differences that can be observed in used burial practices, as well as, indications in how gender and different age groups were expressed and defined by the living through their deposition practices.

### **Death Ways of the Durotriges: Dealing with the Dead in Late Iron Age and Early Roman Dorset**

**Karina Gerdau-Radonic** (Faculty of Science and Technology, Bournemouth University, Poole, Dorset), **Martin J. Smith** (Faculty of Science and Technology, Bournemouth University, Poole, Dorset), **Miles Russell** (Faculty of Science and Technology, Bournemouth University, Poole, Dorset), **Paul Cheetham** (Faculty of Science and Technology, Bournemouth University, Poole, Dorset), **Ellen Hambleton** (Faculty of Science and Technology, Bournemouth University, Poole, Dorset), **Harry Manley** (Faculty of Science and Technology, Bournemouth University, Poole, Dorset), **Damian Evans** (Faculty of Science and Technology, Bournemouth University, Poole, Dorset)

Since 2009, Bournemouth University has been investigating a site near Winterborne Kingston, Dorset, which features both a late Iron Age settlement and a Roman villa. Within the Iron Age occupation, a series of deposits containing human remains have been uncovered. Such deposits, which are rare for this period in Britain, shed considerable light into the burial practices and means of disposing of the dead before and during the early stages of Roman occupation. Some deposits have been found within disused storage pits, and appear to constitute, for the most part, formal burials. Another group of later, first century AD funerary deposits are associated with the abandonment of the settlement site and can be defined as being of the native Durotrigian culture, placed within shallow, oval graves. The present study focuses on the adolescent and adult deposits and brings together different kinds of data – grave goods, stratigraphy, taphonomy, osteology, etc. – to present a picture of differing treatments of the dead in southern Britain between the fourth century BC and the first century AD.

### **Landscape of the Dead and the Living around the Iron Age (400-800 AD) Water Burial of Levänluhta in Western Finland**

**Anna Wessman** (University of Helsinki, Helsinki), **Teija Alenius** (University of Helsinki, Helsinki), **Laura Arppe** (University of Helsinki, Helsinki), **Heli Etu-Sihvola** (University of Turku, Turku), **Kristiina Mannermaa** (University of Helsinki, Helsinki), **Markku Oinonen** (University of Helsinki, Helsinki), **Päivi Onkamo** (University of Helsinki, Helsinki)

Helsinki), **Jukka Palo** (University of Helsinki, Helsinki), **Antti Sajantila** (University of Helsinki, Helsinki), **Tarja Sundell** (University of Helsinki, Helsinki), **Santeri Vanhanen** (University of Helsinki, Helsinki)

An Iron Age (400–800 AD) water burial of over 100 individuals in Levänluhta, Western Finland is currently being studied by an interdisciplinary team of archaeologists and natural scientists. Nowadays the site is located in the middle of a modern field and our aim is to reveal Iron Age and later activities around the water burial and how the landscape has changed during the millennia. Geological methods have been used to reconstruct the large-scale environmental setting. Upheaval maps show that Levänluhta was on the shore of the Baltic sea ca. 1000 BC. The shore retreated quickly and during the Middle Iron Age (400–700 AD) the sea was already ca. 20 km away, but still accessible via river-routes. Pollen analytical studies show the succession of the newly formed land and agricultural activities in the surroundings of the site. The vicinity of the site has been studied using both phosphate analysis and magnetic susceptibility. During spring 2014, an intensive survey with the aid of metal detector will be conducted in the vicinity of the burial. This approach, novel for Finland, will provide us with thorough knowledge on the scale and spread of human activities around the burial.

### **Circular Tombs vs. Rectangular Tombs: Just a Matter of Shape? Regionalizing the Funerary Landscapes in Prepalatial Crete**

**Sylviane Déderix** (Université Catholique de Louvain, AEGIS-Aegean Interdisciplinary Studies/ Research fellow FRS-FNRS/ Laboratory of Geophysical - Satellite Remote Sensing & Archaeo-environment - IMS-FORTH, Louvain-la-Neuve)

The funerary landscape of Prepalatial Crete is dominated by circular tombs on the one hand, and rectangular tombs on the other. Since their discovery, the two types of tombs have usually been contrasted – first from an architectural perspective, then as evidence of differentiated social organization, and recently as an indication of cultural diversity. However, a significant dimension of the available dataset has so far been largely overlooked: space. This paper attempts to bridge the gap by calling on GIS technologies to define the spatial patterning of circular and rectangular tombs in relation to the wider landscape. Of all the choices made by a society regarding the treatment of its dead, those related to the location of the cemeteries are among the most fundamental. The establishment of the abode of the dead plays an active part in a community's process of both forgetting and commemorating its deceased, while reflecting and influencing its attitude to death and the dead. By examining the spatial links between tombs, topography and settlements, this paper sheds new light on the contrasted funerary landscapes of Prepalatial Crete.

### **The Extramural Cemetery at Tell Atchana, Ancient Alalakh: GIS Mapping of the Evidence**

**Tara Ingman** (Koç University, Istanbul)

The burial corpus of Tell Atchana, ancient Alalakh, comprises one of the largest such records in the region. With nearly 300 documented graves, it provides a rich source of information on funerary practices during the Middle and Late Bronze Ages in the Ancient Near East. The extramural cemetery on the northern edge of the mound, first discovered by K. Aslihan Yener in 2003, consists mainly of simple pit burials and has the potential to give funerary archaeologists a unique view of non-elite burial practices in the second millennium BC. However, the cemetery, situated as it is on the edge of the mound, has been heavily subjected to slope wash, erosion, and modern day farming activity. Combined with a lack of architecture within the cemetery, the stratigraphy of the area is particularly difficult to untangle. Therefore, when beginning research on the burial practices at the site, this project created a three-dimensional GIS map of two of the cemetery trenches in order to clarify both the vertical and horizontal relationships of the graves to each other and to nearby architecture. This paper presents the results of this mapping and demonstrates the potential uses of such projects in furthering funerary archaeological research.

### **Ams-, Osl- and Sem- Analyses of Bone and Ceramics from Iron Age Burial Cairns at Rapola in Häme, S Finland**

**Kristiina Mannermaa** (University of Helsinki, Helsinki), **Timo Muhonen** (University of Turku, Turku), **Elisabeth Holmqvist-Saukkonen** (University of Helsinki, Helsinki), **Markku Oinonen** (University of Helsinki, Helsinki), **Kari Eskola** (University of Helsinki, Helsinki)

Rapola in southern Finland is one of the largest Iron Age sites in Finland. The Iron Age occupation lasted c. 1000 years and is evidenced by cairns, settlement sites, ancient fields and a fortification. The amount of documented cairns is more than a hundred. The excavations have revealed that cairns at Rapola include typical burial materials; ceramics, metal objects and cremated human remains. In this paper we present the first results of our bone and ceramic analysis, SEM-analysis and scientific datings (AMS and OSL), and discuss how these results illuminate past ritual processes. The main observations discussed and theorized are 1) Functions of the cairns are not solely connected to burials, 2) Some cairns represent burials from several occasions 3) Ceramics originating from the same manufacture were distributed among different cairns.

## **Computed Tomography of Mummified Human Remains in Old Finnish Churches – A Case Study: Mummified Remains of 17th century Vicar**

**Tiina Väre** (University of Oulu - Laboratory of Archaeology, Faculty of Humanities, Oulu), **Sirpa Niinimäki** (Department of Biology, University of Oulu & Archaeology, University of Oulu, Oulu), **Matti Heino** (Department of Biology, University of Oulu, Oulu), **Sanna Lipkin** (Archaeology, University of Oulu, Oulu), **Jaakko Niinimäki** (Department of Diagnostic Radiology, Oulu University Hospital, Oulu), **Markku Niskanen** (University of Oulu, Oulu), **Milton Núñez** (University of Oulu, Oulu), **Annemari Tranberg** (Archaeology, University of Oulu, Oulu), **Saara Tuovinen** (Archaeology, University of Oulu, Oulu), **Rosa Vilkkama** (Archaeology, University of Oulu, Oulu), **Timo Ylimaunu** (Archaeology, University of Oulu, Oulu), **Titta Kallio-Seppä** (Archaeology, University of Oulu, Oulu), **Juho-Antti Junno** (Anatomy and Cell Biology, Institute of Biomedicine, University of Oulu, Oulu)

From the Middle Ages until the early modern period in the area of present-day Finland the eminent members of the society were often buried under churches. In consequence of the practice and the cold climate, mummified human remains are found under several Finnish churches built prior to the mid-18th century. In 2011 we initiated a multidisciplinary documentation, preservation and research project of these naturally cold-dried church mummies by performing a computed tomography (CT) on the mummified remains of a 17th century Northern Finnish vicar, Nikolaus Rungius. According to our aim the imaging enabled us to conclude about the preservation, anthropometric features, and prior to death health status. Thus, a non-invasive CT-imaging – a globally widely used method in mummy research – proofed competent also in study of Finnish church mummies: it is useful in deriving new information about health in the past in the Northern periphery of Europe without harming this immensely valuable heritage. In addition we are observing the humidity and temperature inside two crypts for a year to examine the process of mummification. Our further aim will be to continue CT scanning of the remains and to initiate stable isotope and aDNA studies of the remains.

## **POSTERS**

### **“Through the Looking Glass” – Late Bronze Age Burial Rite Seen through Computed Tomography Assisted Techniques**

**Hrvoje Kalafatić** (Institute of Archaeology Zagreb, Zagreb), **Mislav Čavka** (University Hospital Dubrava, Zagreb), **Marija Mihaljević** (Municipal Museum Nova Gradiška, Nova Gradiška)

Late Bronze Age community in the River Sava Basin (eastern Croatia and northern Bosnia) has distinctive burial with urns reversed upside down. The first publications (Čović 1958) proposed that this is the result of ritual through which cremated bones of the deceased were spilled in the grave and then covered with reversed urn with bottom part facing up. Recent excavations of cemetery Mačkovac suggested that the bones are mostly concentrated at the bottom of reversed urn. This suggested different burial rite than previously proposed, so CT scanning is conducted to examine position of the bones and other finds in the urns. The results of CT scan confirmed that the cremated bones were concentrated at the bottom of urns. Further more, CT scanning of multiple graves also suggests pattern in collecting and positioning of bones and metal finds in the urn. Position of bones deposited at the bottom of the urn indicates that bones were laid in the grave already placed in urn and rotated together with urn during the burial ritual and that bones were probably wrapped in sheet (skin, textile).

### **Castex Dominique: Plural Burial and 3D, a New Tool for Understanding**

**Geraldine Sachau** (IRHC-CNRS, Bordeaux), **Robert Vergnèux** (CNRS, Bordeaux)

Our aim is to present the creating process to model the plural burials with field documentation, from architecture to skeletal remains and the results achieved. The tridimensional restitution is applied on two plural burials from the Saints Peter and Marcellinus catacomb at Rome (Italy) and containing at least 80 individuals each. The use of 3D models provides a discussion about the chronological patterns and taphonomic process with precision and characterise deposits. Due to these 3D models, we have realised a lot of observation impossible with a classical study which are the thickness of deposits, the position and location of each individual. 3D models allows us to simulate the deposit not like a 3D skeleton but like a corpse. A lot of arguments have permitted to determine that the burial was not a multiple burial or a collective burial but a burial with successive deposits and simultaneity deposits. The 3D models created can be envisaged as a complete tool, from the acquisition data to the dissemination of results. Indeed, the elaboration of the models is marked by a set of discussions, tests and hypothesis thus enabling to lead to a new form of visualisation and representation and new possibilities of interpretation.

### **Reconstructing Mesolithic Burials: Examining Changes of Mortuary Practices in Europe**

**Anna Evatt** (University of Edinburgh, Edinburgh)

One of the most intriguing observations found among some Mesolithic burial sites is the “loose bone phenomenon”, which is the occurrence of disarticulated human bones among shell middens, caves, and formal burials. Disarticulated remains are found among Paleolithic sites, but are more frequent and complex at the beginning of the Mesolithic. Other postmortem



rituals, in addition to disarticulated remains, such as patterns in burial orientation, cremations, and cemeteries, also become more widespread in Mesolithic Europe. The human skeletal remains examined are from Caldey Island (Wales), Schela Cladovei (Romania), Hoëdic and Tévéc (France), and Concheiros de Muge (Portugal). Early hunter-gatherers were the first humans to bury their dead in cemeteries, cremate human remains, and practice the defleshing and caching of individual skeletal elements. What has not been fully understood are the spatial and temporal attributes of mortuary practices nor the occurrence of secondary burials. This research provides additional evidence of variation among burial practices within Mesolithic Europe, tracks the changes in behaviors throughout space and time, examines the origins of secondary burial practices, and reconstructs taphonomic histories of Mesolithic human remains using principles of archaeoethnology.

### **Bayesian Modelling of a Burial Site at Armadale, Isle of Skye, Scotland**

**Anthony Krus** (Scottish Universities Environmental Research Centre, University of Glasgow, Glasgow / University of Edinburgh, Edinburgh), **Mary Peteranna** (Ross & Cromarty Archaeological Services, Ross-shire)

Excavations from 2009–2010 in Armadale encountered a burial site with seven cists, burials containing cremated remains, pits, hearths, remains of a kerb cairn and a stone circle. Twenty-one radiocarbon measurements were taken from single- or multiple-entities of short-lived charcoal, carbonized residue of pottery, and cremated human bone. A site chronology has been interpreted using a Bayesian approach that considered the stratigraphic contexts and feature formation processes. The burial site was host to thousands of years of discontinuous activity beginning in the mid- to late-Neolithic with a hearth (3340–3025 cal BC; 95% probability) and a cremation burial (2870–2575 cal BC; 95% probability). The bulk of activity from the burial site dates to the early- and mid-Bronze Age and there is currently no evidence that burial activity continued after the mid-Bronze Age.

### **Obliteration or Preservation? The Use of Lime in the Funerary Practice of Archaeological Past Populations**

**Ana Seabra** (University of Coimbra, Coimbra), **Ana Maria Silva** (University of Coimbra, CIAS, Coimbra)

Lime has been used in funerary practice throughout a wide chronological period and by several human groups, as well as in Forensic as a way to dispose of human remains. The perception that lime accelerates the process of decomposition becomes of interest not only for Forensic Science but also for Bioarchaeology due to its widespread use in the Past. This poster aims to present an ongoing study of the use and effects of lime on archaeological human remains, using the sample from the Convent of Saint Eloi (15th–19th century) in Porto as a starting point for our study. The study will focus on the following questions: Is the presence of lime consistently related to the architectural space where the grave is situated (inside of a church, cloister i.e.), or with multiple burial/re-use of the grave? Is it associated with an individual's illness and on what parts of the body is it more commonly found? What are common sense assumptions and what does a systematic overview show? Which methods, if any, provide reliable information for the identification of lime on archaeological sites?

### **Identification of Inorganic Pigments Which Were Used on Cartonnage and Masks of Mummies**

**Hossam Sleem, Mohamed Marouf, Gomaa Abd Elmaksod**

Color is recognized as such through our sense of sight, much like a scent is identified through our sense of smell. many combinations of wavelengths form colors. The nerve cells in our eyes interpret all combinations of light as being red-or-green, and yellow-or-blue. These are the four primary colors for the mind. Among the combinations of these 4 primaries, we perceive a lot of variation between yellow and red (the oranges) and between blue and red (the purples). If the intensity of the wavelengths is more similar, then we perceive neutrals. Lots of light yields whites, and very little light the blacks. In the natural world, there are a lot of neutral tones based on browns because of the abundant iron in the earth, and so we also include a family of browns above. Painters didn't always have pigments for each color. In fact, the historical choice of primary colors was limited by the availability of suitable pigments, which until the late 19th century was lacking in vivid greens or purples. In lieu of bright greens and purples, pigment mixtures (for example, mixing blue and yellow) have been used since ancient Greece in order to get closer to a specific hue.



### **T06S026 - THE ODD, THE UNUSUAL, AND THE STRANGE: HUMAN AND ANIMAL DEVIANT BURIALS AND THEIR CULTURAL CONTEXTS**

**Organizers: Anastasia Tsaliki** (University of Athens, Athens), **Tracy K. Betsinger** (SUNY College at Oneonta, Oneonta), **Amy B. Scott** (University of Manitoba, Winnipeg)

Deviant burials provide an opportunity to gain invaluable insight to cultural constructions of outsiders, non-conformers, or "others" of different kinds. Sometimes, individuals who were viewed as "extraordinary", either in life or in death, were given unusual burials, reflecting their special status. These burials are identified in the archaeological record by evidence

of different or unusual burial rites to those common in the given social group, segregated inhumations/cremations, unexpected burial accompaniments, or alterations to the corpse. While deviant burials are primarily focused on specific individuals within a community, they reflect larger social values of how the living choose to bury the dead and what is considered a deviant or special status within a group. Highlighting deviant burials in a session format would provide a unique opportunity to explore these case studies and the common elements that unite these burials across different geographic and temporal landscapes. We will discuss a variety of cases, from European revenants to mass graves and decapitations in China, showing the challenges they pose towards a careful retrieval and interpretation of the archaeological record, not only through traditional archaeology, but also through a multidisciplinary approach which combines archaeology with biological anthropology, sociology, zoology and environmental science.

## ORAL PRESENTATIONS

### **A Deviant “Life” After Death: The Postmortem Existence of the Unusual Dead**

**Lauren Hosek** (Syracuse University, Syracuse)

As any bioarchaeologist knows, dead bodies can have curiously active postmortem “lives”. Archaeological cases of deviant burials draw attention to the ways in which dead bodies are given agency – in both the past and the present. In this paper, I examine the widespread medieval belief in the active lives of dead bodies through folk traditions, Christian theology, forensic analysis and archaeological evidence. My ongoing dissertation research of an early medieval cemetery in the Czech Republic highlights the perception of the ambulatory dead in the medieval imagination through the treatment of certain “deviant” burials. However, I also draw attention to how the postmortem lives of these particular bodies continue into the laboratory of the present day. Like our medieval counterparts, we see something “different” about these bodies in terms of their location, unusual mortuary practices, or the skeletal remains themselves. We, too, have an uneasy relationship with the unusual dead. They can be difficult to categorize, difficult to interpret and difficult to discuss – often becoming even more “active” when caught up in media attention. The materiality of these bodies, and the materiality of their “deviance” captivate our imaginations (both medieval and modern) and facilitates their movement through time and space.

### **Romano-British Deviant Practices: Decapitation and Faunal Deposits Reconsidered**

**Shaheen M. Christie** (University of Wisconsin-Milwaukee, Milwaukee)

Archaeological investigations of Romano-British burials have revealed a variety of burial treatments and attitudes toward the dead. Ambiguous, unusual or differential burial forms have traditionally been interpreted as ‘deviant’. Characteristic features include mutilation of the corpse, prone position, decapitation, and non-normative burial location, among others. Such burials have been viewed as the remains of individuals of low or criminal status; however, a contextual analysis of late Iron Age and Roman practices suggests alternative readings that could shed new light on Romano-British burial rites more generally. This paper will focus on decapitated inhumation burials with associated faunal deposits in central and southern Britain in order to delineate the complex uses and meaning of the presence of animals within the burials. Thought to mainly represent the remains of funeral feasts, a re-examination of the evidence suggests that these deposits may be ritually ‘killed’ objects that in some cases were used to demarcate the presence of valued or revered members of society. This preliminary investigation offers an opportunity to expand our understanding of the larger social context by challenging the assumed negative status of so-called deviant burials while reassessing the nature of deviancy during the 1<sup>st</sup> – 4<sup>th</sup> century A.D. in Roman Britain.

### **Deviant Burials in Anglo-Saxon England: Patterning & Process at Great Chesterford**

**Sarah Inskip** (Leiden University, Leiden), **Sonia Zakrzewski** (University of Southampton, Southampton)

The cemetery of Great Chesterford lies to the southeast of Cambridge in East Anglia. A series of 167 inhumations from 161 Anglo-Saxon graves have been re-examined (for summary, see Inskip 2008). Pathologies not described in the original skeletal report included cases of tuberculosis and leprosy. For an Anglo-Saxon cemetery, the assemblage has a relatively large proportion of juveniles. Some of these juveniles themselves exhibit pathological conditions, such as extreme periosteal reactive bone growth (potentially hypertrophic (pulmonary) osteoarthropathy). The patterning and location of both the pathologies and the juveniles within the cemetery implies the recognition of unusual and anomalous individuals by and within the local community. The entire Great Chesterford cemetery appears to exhibit certain traits that have been typically associated with deviant or abnormal burial practices from the Anglo-Saxon period. These include a higher than normal proportion of infants and young juveniles, burials in unusual body positions, and burials in association with animals such as horses. Such aspects suggest that deviance from Anglo-Saxon burial practice was the norm within this assemblage. This paper discusses aspects of deviance in Anglo-Saxon burial practice and places the unusual aspects of the Great Chesterford cemetery into a wider context.

## **Cry Murder? The Discovery of Human Remains in the Post-Medieval Moat of the City of Oudenaarde, Belgium**

**Katrien Van de Vijver** (Centre for Archaeological Sciences KU Leuven, Leuven), **Ruben Pede** (SOLVA - archaeological service, Aalst), **Sigrid Klinkenborg** (SOLVA - archaeological service, Aalst)

During excavations in Oudenaarde in 2008, archaeologists discovered human remains in the old city moat. Old maps of 'De Ham', where the excavations were carried out, show a relatively open area, bordered by the river Scheldt and by the city wall and moat. Excavations revealed different layers from the period of use of the moat, which contained the remains of minimum four individuals. They are not part of normal funerary depositions, the lack of grave features indicates they were deposited in the moat and later covered by the fill. Two severely disturbed, supine bodies were recovered together. Another was found prone, with the arms crossed behind the back, and one was supine, with one arm across the abdomen and the other flexed outward. The context and position indicates unusual and violent circumstances. The layers are dated in the 16th century, a troubled time for Oudenaarde, with a revolt in the first half and religious troubles in the second half of the century. A combination of the skeletal study, the archaeological context and historical sources may provide an answer as to how and why these bodies ended up at the bottom of the moat.

## **Who Were They?**

**Jane Jark Jensen** (Museum of Copenhagen, Copenhagen)

In 2008 the Museum of Copenhagen excavated the northern part of the churchyard belonging to the oldest known church of Copenhagen. The churchyard was in use from around year 1000 and until The Reformation in 1536 when the church was demolished. The burials testify to a population, which was – at least for the majority, the less prosperous of the people of medieval Copenhagen. The excavation revealed a surprising level of care and unusual arrangements in many of the graves. Up to ¼ of the burials had been arranged in a special manner and these burials had a much more individual setting than most medieval, Scandinavian burials in general. These settings included a number of items: stones, bones, artifacts and organic material. Also a number of graves included an adult with one or more children buried together. The child burials are also to be highlighted. A high number of these were prepared with special care – both when it comes to artifacts and the presentation of the body. Were these special burial costumes an expression of superstition, preparation for the afterlife, regional heritage, a mix or something else? Who were these people that stood out from the other burials at the churchyard?

## **Deviant Burials in Finland – Are There Any?**

**Ulla Moilanen** (University of Turku, Turku)

My presentation takes a look at inhumation burials of iron age/medieval Finland, starting from the 9th century AD. Most of the cases are previously unpublished, and haven't been thoroughly studied. I am presenting examples of cases that could be described as atypical, including double burials, peculiar grave-goods or positioning of artefacts. Some of the presented graves are unique in their appearance, but in several cases, comparable counterparts can be found. This raises a question of the definition of deviant or atypical burial, which needs further discussion. The challenges and potential of further studies on the graves are also presented.

## **Deviant Burials in Early Medieval Poland. Past Controversies and Recent Revaluations**

**Leszek Gardela** (Institute of Archaeology, University of Rzeszow, Rzeszow)

The last decade has seen a growing academic and popular interest in early medieval mortuary archaeology. Several scholars from the UK, Scandinavia and Poland have begun to look more closely at mortuary behaviour, which deviated from the norm and involved, for example, pre- or post-mortem decapitation, placing stones on the cadavers or burying the dead in prone position. Over the years these practices have been given various labels in academic literature. In Western and Northern Europe they are often described as 'atypical' or 'deviant' burials, whereas in Poland a frequently occurring (yet very problematic) term is 'anti-vampire burials'. When placed in a broader context the reasons for non-normative treatment of the dead appear to have been manifold and diverse – i.e. they may have been the result of popular superstition (fear of revenants), human sacrifice, violent executions, judicial practices or unfortunate accidents. Somewhat strikingly, in some instances they may have even expressed utmost respect towards the dying or the dead. This paper will summarise the preliminary results of a new research project, which seeks to explore all deviant burials from the area of early medieval Poland in a comparative and interdisciplinary perspective, drawing on archaeology, anthropology and folklore.

## **Biology or Culture? Determinants of Deviant Burials in Post-Medieval Poland**

**Tracy K. Betsinger** (SUNY College at Oneonta, Oneonta), **Amy B. Scott** (University of Manitoba, Winnipeg), **Lesley Gregoricka** (University of South Alabama, Mobile)

Over 300 human burials have been recovered from the 17th-18th century cemetery site of Drawsko 1 in northwestern Poland. Of these, six burials have been identified as non-normative, based on burial inclusions, which barricade the corpse

within the grave. This practice has often been cited as anti-vampiristic and related to prevention and fear of revenants. The purpose of this paper is to explore these deviant burials and examine the possible cultural and biological reasons why the individuals received different mortuary treatment. Bioarchaeological analysis was conducted on the skeletal remains to assess patterns of health, including trauma, disease, and stress. The results indicate that there is no biological or health explanation for why the six burials received specialized mortuary treatment, at least based on these skeletal indicators. Cultural explanations are therefore, a more likely basis for these differential mortuary customs. For example, individuals migrating into a community and considered “outsiders” were potentially at greater risk of receiving such burial treatment. Stable isotope analysis is one way in which this can be assessed.

### **Subadult Funerary Treatment in the Dacian Culture. An Extended Analysis of the Necropolis from Hunedoara – The Castle’s Garden Plateau (Romania)**

**Claudia Radu** (Babeş-Bolyai University, Cluj-Napoca), **Norbert Zaeredai** (Babeş-Bolyai University, Cluj-Napoca), **Cecilia Chiriac** (Babeş-Bolyai University, Cluj-Napoca), **Cristian Roman** (The Corvin Castle Museum, Hunedoara), **Beatrice Kelemen** (Babeş-Bolyai University, Cluj-Napoca)

Our study presents the challenges encountered in interpreting the archaeological situation discovered in the necropolis from Hunedoara-The Castle’s Garden Plateau (Romania). The funerary assemblage is biritual and contains the burials of 57 individuals, dated between the 4th century BC to the end of the 1st century AD, in the Dacian Period. In contrast to what the demographic profile of a necropolis should look like, 40 of the 57 individuals are subadults, most of them with an age below 7 years. So far, one proposed explanation for the high number of children is that of human sacrifice. Deviant burials must be diagnosed with great caution, as we are dealing with archaeological realities and specific aspects remain hidden during the research. Therefore, we consider that the characteristics of the necropolis from Hunedoara-The Castle’s Garden Plateau are subject to more than one explanatory hypothesis. In order to trace back the process that lead to the formation of this assemblage and infer its function, we propose a biocultural approach, in which we make use of archaeological, physical anthropological, genetic and molecular analyses. By correlating the results from these analyses we can produce a more complex picture and extend the explanation for this particular archaeological finding.

### **Remains of Human Sacrifices in Pit Sanctuaries of the Fifth – Beginning of the Third century BC from Thrace**

**Milena Tonkova** (Bulgarian Academy of Sciences, Sofia)

The aim of the study is to present numerous examples of human skeletons in abnormal positions and unusual contexts coming from pit complexes excavated in Bulgaria. The sites with such characteristic are more than 50. These are big complexes with hundreds of pits, interpreted as pit-sanctuaries. Single pits with human remains have been discovered in almost all similar sites – skeletons in anatomic order and abnormal position: prone, with a head towards the bottom and legs toward the hole of the pit, sitting position, severely bent, etc. These burials include children and adults, men and women. In certain cases there are data for their violent killing (with thrown stones or slaughtered). Five particular terrain situations from the author’s excavations will be presented. They were registered in three different sites from the middle course of Maritsa River dated 5<sup>th</sup>- early 3<sup>rd</sup> century BC, including Malko Tranovo (350 pits), Gledachevo (150 pits) and Yabalkovo (100 pits). Tremendous amounts of fragmented clayware, luxurious bronze vessels, jewellery, coins, animal bones and cult items were discovered in the pits. Human skeletons, all of them in abnormal positions, were found in only few pits (one out of 80). These unusual burials have been considered as archaeological evidence for practicing of human sacrifice in Thrace.

### **Two Deviant Burials of the Early Hellenistic Period from Halka Bunar, in SE Bulgaria**

**Athanasios Sideris** (Foundation of the Hellenic World, Athens), **Milena Tonkova** (Bulgarian Academy of Sciences, Sofia)

During a joint excavation project which is ongoing since 2009 in Halka Bunar, SE Bulgaria, an Early Hellenistic site was identified and gradually uncovered. On two sectors of the excavated area there have been located two unusual burials, one containing one male, and the other two female skeletons. They exhibited unusual body positions and were associated with unusual features and artifacts. The situation in both pits is far from what we know of regular burials for the concerned area and time period. The way of death of the buried individuals is not entirely clear. The paper presents in details these burials and examines their connections to several other unusual aspects of the site. Some more considerations, based on the evidence of Greek imported artifacts, are made concerning the Dionysian and Orphic character of the local cult, which seems to favorize the hypothesis of a ritual murder or sacrifice. Links to other deviant burials of the same period and region, as well as the literary evidence for human sacrifices in Thrace, will be presented as well.

### **Special Cases, Deviant Burials and Changing Norms: A Case-Study from Mycenaean Greece, 1600 BC**

**Sofia Voutsaki** (University of Groningen, Groningen)

Recent discussions on deviant burials have shed light on funerary ideologies as well as attitudes to deviant groups. However, the discussion sometimes relies on a schematic contrast between normative and deviant burials that does not do jus-

tice to the complexity of mortuary practices. This paper explores the grey areas between difference, diversity and deviancy in mortuary practices, especially in periods of socio-cultural change. I shall use the double burial of a man and a woman in tight embrace as a starting point for the discussion. The burial will first be compared with the other interments of the same cemetery (Ayios Vasilios, Laconia) in order to highlight its unique as well as its normative features. It will then be examined within its regional context in order to reconstruct the mortuary traditions of the southern Greek mainland. Finally, it will be placed within its historical context: the early Mycenaean period (1700-1500 BC), a period characterized by innovation in social practices, intensified social change and increased connectivity. The main point made in this paper is that deviance is a relative concept, which needs to be examined both diachronically against the local mortuary tradition, and synchronically within a web of interactions and mutual influences.

### **The “Vampires” of Lesbos: Detecting and Interpreting Anti-Revenant Ritual in Greece**

**Sandra Garvie-Lok** (University of Alberta, Edmonton), **Anastasia Tsaliki** (University of Athens, Athens / Durham University, Durham)

Greece has a well-documented pre-modern tradition of belief in vampires. Because many rituals related to these beliefs centred around the grave, they should be archaeologically visible in the form of burials in which the corpse was treated to dispel a vampire. Although the ethnographic and ethnohistorical records suggest that such altered graves should be fairly common, proposed cases are surprisingly few. In this presentation, we discuss two likely Ottoman-era vampire burials recovered on the island of Lesbos, Greece in the wider context of normative burial practices and vampire ritual. A look at normative burial traditions through documentary and archaeological evidence provides useful insights into what graves of the period should look like, as well as an idea of the cultural meanings of disease, deformity and a corpse's burial and decay. We then discuss documentary and ethnographic evidence for necrophobic practices in Greece and the physical traces that such burials should leave behind. Discussing the Lesbos burials in this light, we demonstrate the case for considering them to be instances of vampire ritual. We also consider why vampire burials might be under-reported archaeologically and offer some suggestions for their improved detection and study in the future.

### **Human Sacrifice or Necrophobic Practices? New Perspectives on “Deviant Burials” and Mortuary Practices in Predynastic Egypt**

**Ian Gonzalez** (Université Montpellier, Montpellier)

Recently, researchers have begun to analyze the so-called “deviant burials” in a whole new direction, aiming to find new options of explanation, like the concept of “fear of the dead” This new way of thinking funerary and mortuary practices made us ask the question if it was possible to translate this new approach on the case of Predynastic Egypt. Indeed, this archaeological period is known for very destructive mortuary practices, involving wrapping and padding of the dead, destruction of parts of the human body, and even decapitation in some rare cases. Taking a whole new interpretation on the subject, we are able to suggest an alternative enlightenment to the regular arguments given by Egyptologists. In fact, some practices explained as ritual mortification or human sacrifice, can be seen as ceremonials to prevent the dead to harm the living. Most of the most mysterious cases of deviant burials seen at Adaïma or Hierakonpolis can be clarified. The treatment of the cadaver can also give arguments on this way, like the body contention, giving information about the new concept of necrophobic practices.

### **Distinctive in Death: The Bioarchaeology of Non-Normative Mortuary Behaviors at Çatalhöyük, Turkey**

**Joshua W. Sadvari** (The Ohio State University, Columbus), **Scott D. Haddow** (Cranfield Forensic Institute, Bedfordshire), **Christopher J. Knüsel** (Université de Bordeaux, Bordeaux), **Clark Spencer Larsen** (The Ohio State University, Columbus), **Selin E. Nugent** (The Ohio State University, Columbus)

Çatalhöyük is most well-known for its Neolithic occupation but also served as a cemetery during the Roman period and currently stands as a prominent landmark overlooking the nearby village of Küçükköy. Throughout these occupations, Çatalhöyük is distinctive as a place for both the living and the dead. As bioarchaeologists, we seek to use our knowledge of the latter to better understand the former. Viewing Çatalhöyük through the lens of mortuary archaeology can advance this understanding, as we find examples of non-normative burial practices during each of these chronologically disparate periods (the prehistoric, historic, and recent past), practices which inform us about the “others” buried in non-normative ways and the living members of the communities that carried out these interments. This paper discusses several examples of non-normative burials at Çatalhöyük, including burials characterized by unusual grave inclusions, body treatments, and locations in the Neolithic, a double burial with an atypical grave orientation in the Roman period, and the lone twentieth century burial of a woman from Küçükköy. In unique ways, these burials enhance our understanding of status and identity construction within a community, ostracism from a community, and the power of social memory across the distant and not so distant past.



## **“Non-Normative” vs. “Normative” Burials of Neolithic Çatalhöyük**

**Başak Boz** (Trakya University, Edirne)

Çatalhöyük is known for its intramural burial practices. The burials were mainly interred within the houses, under the platforms and floors in flexed positions. Although multiple burials seem to be well represented due to the later disturbances, the norm is primary, single burials. However, many burials have been found at the site that differ from the rest and are unique in their own right. In this paper, four cases from the same site will be discussed. Three of these examples have been broadly categorized as “special” in a positive way such as having an important place in the society to deserve such treatment. One case, on the other hand, was special in a negative way, based on where a particular individual was found and their possible physical appearance as a result of disease. In the light of these burials, it will be addressed whether “normative” and “non-normative” burials can be justifiably defined.

## **“Extraordinary” Burials as an Attribute of Interaction between Srubnaya and Andronovskaya Population of the Late Bronze Age in the Southern Transurals**

**Tatiana A. Leonova** (Bashkir State Pedagogical University, Laboratory of Methodology and Methods of Humanitarian Research, Ufa), **Iia A. Shuteleva** (Bashkir State Pedagogical University, Laboratory of Methodology and Methods of Humanitarian Research, Ufa), **Nikolai B. Shcherbakov** (Bashkir State Pedagogical University, Laboratory of Methodology and Methods of Humanitarian Research, Ufa)

The Late Bronze Age in the Southern Transurals (Beta Analytic: 1890 – 1750 BC) is characterized by uniformity of obsequies of barrow burials and Srubnaya culture settlements. In the Urshak river basin having area of 23,4 km<sup>2</sup>, a micro-district was identified which contained great quantity of “extraordinary” burials. There is a group of 5 settlements and 4 barrow burials here. In the biggest settlement varied anthropologic material was found out. In the mound of the settlement there was a grave of a child (1,2-1,5 years old). In the mound they also found out a grave of an adult couple, a man (30 – 35 years old) and a woman (50 – 59 years old) (Caucasoid and Mongoloid types). In 4 barrow burials 16 barrows were investigated and 31 burials were identified. 4 out of 7 “extraordinary” burials contain stone cysts, buried skulls and horse legs, and 1 cenotaph. Such burials and Mongoloid features are “extraordinary” for Caucasoid Srubnaya population. Radiocarbon dating, paleopedology and technical and process analyses of ceramics applied, proved chronological unity of these barrows and settlements. This may mean either “extraordinary” social status of the dead, or signs of impact of Andronovskaya, Alakul population of Transurals and Kazakhstan.

## **Nontraditional Burial Practices in China and Mongolia**

**Christine Lee** (University of South Florida, Tampa)

The majority of the 5000 years of burials in China and Mongolia are single extended internments or familial groups. However, there are several instances of unusual burial patterns. In Central Mongolia one cemetery contains mostly infant remains. Paleopathological analysis showed the infants were either stillborn or had suffered serious infections. In northeastern China, a burial complex consisted of one central male, 20 female attendants, and one beheaded male. The beheaded male was left in the doorway. Central China has several examples of mass graves dating to periods of upheaval. At one site, several individuals were killed and thrown into a well. Dental analysis showed the males were probably from the same family. Another burial dates to one of the pivotal battles in the formation of the first Chinese Empire. All of the young men had multiple arrows imbedded in their backs, and were beheaded. In southern China there are secondary internments, with up to 22 individuals. These skeletons were defleshed and gathered before being reburied. Finally in northwestern China, there is evidence of several individuals who may have been bound and buried alive in familial tombs.

## **Disarticulation of the Dead as Funerary Ritual: The Case of Jomon Period in Eastern Japan**

**Takeshi Ishikawa** (Kyushu University, Fukuoka)

In the Japanese prehistoric eras, there are unusual inhumations in which parts of the body were disarticulated and/or secondary removed. This unusual postmortem treatment has been examined in terms of the ritual meaning, mainly using the skeletal remains from Western Japan. Because of the inclination of the examined area, situation of the eastern Japan is unclear although there are a large number of skeletal remains especially of the Jomon Period. This paper examines unusual skeletal arrangements seen in the samples of the Middle and Late Jomon Period in the Eastern Japan. The postmortem disarticulation is seen in multiple body parts. The cranium and lower limb were disarticulated in many cases among the sample and in one case these were removed to somewhere else after disarticulation. Most of the individual primary burials are estimated to be disarticulated in the vicinity of the inhumation, though in a few cases buried in the discarded houses graves certain body parts were disarticulated after being decomposed in a certain degree but not completely skeletonized. From these observations, the part of treatments of the dead and its religious meaning will be argued.

## Ancestor and Special Status as Seen from Burial Archaeological Record: A Case Study from Manihina, Ua Huka Island (Marquesas Archipelago)

**Pascal Sellier** (Centre National de la Recherche Scientifique, Paris)

If special status individuals should have unusual burial, this case study from Manihina site (Marquesas Archipelago) is of meaningful evidence. It is part of an ancient funerary site, dated 15th century AD, that is far before the first discovery of Ua Huka Island by the Europeans (in 1791). Around 40 human burials have been so far excavated together with pig and dog burials. This one is a complete “secondary burial”, with the whole skeleton of an elderly male individual, together with few rare ornaments (unique among the other graves). This practice stands at the very end of a long and compound burial process: It is the final result of a whole mortuary “chaîne opératoire”, which is quite rare to be evidenced within the archaeological record. The archaeo-anthropological observations lead to reconstruct a small (probably wooden) box, with all the dislocated bones in it, on the top of which stood a trophy-skull (the cranium and mandible of the subject himself). It should have been an impressive and ostentatious show of this special individual. In that way, it cannot be seen as a deviant funerary practice but more probably as an extraordinary way of turning the dead into an ancestor.



### T06S027 - BURIAL COMMUNITIES IN LONG TERM PERSPECTIVE

**Organizers:** **Julio Escalona Monge** (Instituto de Historia - CSIC, Madrid), **Orri Vésteinsson** (University of Iceland, Reykjavík), **Iñaki Martín Viso** (Universidad de Salamanca, Salamanca)

Burial archaeology conventionally considers burials and cemeteries primarily as types; as representatives of technological traditions, cultures, ethnicity, religions. The aim is always to characterize the cemetery; e.g. ‘Christian’, ‘LBK’ or ‘Quaker’, and once such pigeon-holing has been achieved that is too often all the relevance a site may acquire. In the Christian era in Europe changes in burial customs and locations tend to be appreciated mostly as evidence for conversion and as a measure of Christianization. Burial customs are seen as evidence for particular religious beliefs or at least acceptance of particular religious norms. Yet there is considerable variability in burial customs and burial locations which cannot be related to changes in religion, raising the question of what else can influence how people are buried and where they are buried? In this session the focus will be on burial communities; how to identify, understand and analyse the groups of people who shared burial grounds. How were such communities constituted and how did they react to changes in religion and religious organization? The emphasis is on long-term studies of burial topography and on examining changes in burial locations against the landscape background, as a feature of settlement patterns and community organization.

## ORAL PRESENTATIONS

### Abandoning the Ancestors? The Changing Burial Customs of Viking Age Uppland, Sweden

**Jhonny Therus** (Uppsala University, Department of Archaeology and Ancient History, Uppsala)

During the transition from the Viking age to the medieval era we can observe a 200 year long period of acculturation or hybridity in the burial customs. At the advent of the 10th century A.D. the burial customs are distinctly pagan. Cremation and burial grounds connected to individual farms where the norm, but around 1150 A.D. the area is fully incorporated into the European church organisation. During the transitional period different burial customs exists side by side and the change from Pagan to Christian ways was a decidedly local phenomenon where identity and the connection to the family ancestors were essential. Only late in the Christianisation process did the “correct” burial custom become an important matter. How far society had come in the adjustment to Christianity, as well as how the old burial practises were connected to the self-image of the local communities came to influence the way in which the change took place profoundly. During this hybrid phase we can also observe how the grave changes from being a largely collective monument reserved for a selection of the population to a storage place for individual bodies.

### Parish-Formation from the Perspective of the Long-Term Dynamics of Burial Communities in the Frankish Lowlands, a Problematic Pathway

**Dries Tys** (Brussels Free University, Brussels), **Rica Annaert** (Flemish Heritage Institute, Brussels), **Maxim Hoebreckx** (Brussels Free University, Brussels)

The medieval parish in the (Frankish) Low Countries was an important institution, structuring society and landscape, providing (up to today) a sense of community oriented towards the parish church, the parish boundaries and the communal burial ground. It is generally accepted that the ideological choice to organize community burials “ad sanctos”, around local churches, between the late 8th and early 10th c was essential for the formation of this organized network of religious life in communities. The archaeology of burial communities before this “long 9th c.”, however, shows a wide variety of regional and chrono-

logical specific forms (and choices) to share and organize burials as communities. The spatial structure and organization of the burial grounds, ritual practices and “technologies of remembrance” and the construction of the actual burial groups and the relation to and influence of ancestry of burial communities in different areas of the southern Low Countries show how Christian parish formation was not a necessary teleological process. The question is why and how the church transformed this diversity of rituals and identities towards ideological uniformity in the Frankish Lowlands in the Carolingian period.

### **Re-Assessing Burial Communities and the Making of the Parish in 10th-11th century Castile**

**Julio Escalona Monge** (Instituto de Historia - CSIC, Madrid)

This paper aims to challenge the widespread assumption that in north-western Iberia the creation of a parish system took place suddenly in the late eleventh-century, in the context of the Gregorian reformation. This notion finds support both among historians and archaeologists, especially in the lights of recent studies about the construction of rural parish churches. However, it also has the effect of obscuring the situation in the tenth and for most of the eleventh century. A critical reassessment reveals that significant steps towards the creation of rural parishes can be detected already in the tenth century. Those are strongly related to a re-definition of rural communities that expresses itself, among other factors, in burial sites and their relation to churches. It is suggested that what took place in the late eleventh century was a conflictive transition towards a continuous, intensely territorialized ‘diocesan model’, whereas the preceding phase was characterized by discontinuous, extensive territorialization. In the process, the relationship between bishoprics, monasteries and rural churches became dramatically re-defined. Likewise, the role of monasteries as alternative burial sites and as controllers of rural churches must be taken on board too as a major factor.

### **From Burials to Family - The Medieval Household Cemetery in Iceland**

**Guðný Zoega** (Skagafjörður Heritage Museum, Sauðárkrúkur)

In recent years a systematic survey of early Christian cemetery sites has been undertaken in the region of Skagafjörður, North Iceland. It has revealed a large number of small 11th – 12th century cemeteries, located on individual farms with little indication for the existence of contemporary communal cemeteries. At the farm Keldudalur in Hegranes a series of construction projects has led to the discovery and excavation of a pagan burial field, an 11th century church and cemetery and associated dwellings. The ubiquity of known contemporary cemeteries in the area indicates that the Christian cemetery contained the remains of a single household/family. The cemetery population consisted of 60 individuals, half of those infants and children and the excellent quality of skeletal material facilitated extensive osteological analyses. The paper discusses what the material tells us about the demographics behind a century of household burials. The discontinuation of burial at the pagan grave field, the establishment and early 12th century abandonment of the Christian family cemetery tells a story of one family’s response to societal and religious changes. However, the spatial layout of the burials and the religious architecture indicate a response that, even if very local, still respected a broader ideological framework.

### **Peasant Monuments? Mortuary Geography, Territorial Articulation and Post-Roman Landscape in the South-Western Duero Basin (Salamanca, Spain)**

**Rubén Rubio Díez** (Universidad de Salamanca, Salamanca)

The funerary record is the main indicator of the presence of rural settlements in several regions of the Iberian Peninsula, since the material culture linked to habitat spaces is much more elusive. Thus, the rock-cut graves characterize the post-Roman landscape in outlying rural areas in terms of Visigothic territorial control. It is possible to understand the social organization of local communities and their economic orientation by analyzing the spatial integration of the cemeteries. Some recent studies have linked this type of burial spaces with territorial ownership mechanisms by the claim to the memory of ancestors. This perspective has led to consider it as peasant monuments. In parallel, the existence of various archaeological sites identified as early medieval aristocratic settlements allow us to understand the territorial organization of the rural world in terms of the dialectics between peasant spaces and places of power.

### **An Investigation of the Differential Treatment of the Dead in Neolithic Anatolia and the Near East**

**Jacquelyn Kyle** (SUNY Buffalo, Buffalo)

Examining the ways in which the dead at Çatalhöyük were treated allows a glimpse into the dynamic ideologies of those that disposed of them. Through analysis of the excavated human remains and their contexts, I will explore the ways in which the differential treatment of the dead reflects differential conceptions of those dead and how those conceptions may have changed through time. Emphasis will be placed on identifying factors that affected how and where people were buried. Treatment of the dead will be examined and compared with other Neolithic sites in Anatolia and the Near East, as will elements that may have influenced that treatment. Through analysis of skeletal material, attention will be focused on the corpse itself, including biological profile (age, sex, disease/pathology, nutrition), placement of the corpse, and post-

mortem modifications. Further, aspects of the grave, including location (proximity to other graves, position within settlement, inclusion in 'history houses'), presence and types of grave goods, human disturbance to the grave, and addition of later human remains will be considered. This will allow for the assessment of factors influencing decisions about how and where to dispose of the dead, and how the relative significance of these factors changed through time.

### **Laid to Rest in Hellenistic Polis. Seeking a Balance between Individual and Society**

**Lucia Novakova** (Trnava University, Department of Classical Archaeology, Trnava)

Hellenistic burial rites associate hero cult with the cult of dead or tomb cult. Bringing grave offerings is closely related to ancestor cult based on the idea the deceased has an impact on the living. The hero cult is made distinct by the formal character of ritual activities and the cost of the grave monument. Another difference lies in the implementation of regular activities which could take place during the internment of the dead in the grave, or when re-visiting the tomb. A similar model of cult activity from the Bronze Age occurs once again. It is expected that the resumption of such practices was allowed by political and constitutional changes in the polis. The need is emphasized to highlight the role of the individual in society, which is starting to develop in parallel with the loss of political and cultural orientation to the polis. Live in the community, however, played an irreplaceable role. At this time a change in the understanding of the tomb may be seen-the abode of the decedent becomes a sanctuary designed for worship. Expansion of private heroization resulted in a reduction of its importance, however, allowing a transformation in the following period.

### **Regional Variability of Roman Burial Customs in Illyricum**

**Tino Lelekovic** (Croatian Academy of Sciences and Arts, Zagreb)

The paper will focus on the regional variability of the burial customs in Illyricum, especially in southern Pannonia. During the past decade several Roman cemeteries have been excavated in Croatia, which opened new insights on burial rites in this part of the Empire. These new excavations allowed the redefinition and reconsideration of older theories about spatial and chronological distributions of certain burial features in the region, also to speculate about the reasons why certain types of burials are concentrated on certain areas. This paper will try to examine the existence of regions with clearly differentiated burial customs and to try to relate regional variability of burial customs with regional identities. New excavations also revealed burials which differ from those with predominantly used rites. Some of those burials probably can be related to certain groups within provincial society (military, local aristocracy...), but some can be interpreted as the burials of minority groups. This paper, through historical and cultural contextualization of each of the defined types of burial features, will try to give a satisfactory explanation for the variability of burial customs in Illyricum, both at a regional level and within certain communities.

### **Burial Practices of Protestants as Identity Community of the Excluded in France during the Modern Period (16th - 18th centuries)**

**Cécile Buquet-Marcon** (Institut National de Recherches Archéologiques Préventives CIF, Pantin Cedex), **Isabelle Souquet-Leroy** (Institut National de Recherches Archéologiques Préventives GSO, Bègles)

During the modern period, in France, Protestants were excluded from society. They lived and died in hiding. The violent events of protestant history obviously had an impact on the funerary practices of these communities because they resulted in massive destruction of places of cult and cemeteries. Exclusion forced Protestants to bury their dead outside the parish cemeteries and forged a funeral tradition still visible today. From recent archaeological discoveries, it is possible to understand that these populations adapted to secrecy and exclusion by creating hidden graveyards or difficult to identify in the landscape. It is a way to maintain a religious network of funeral spaces. Our communication aims to present different protestant cemeteries discovered during archaeological excavations and the difficulty to identify them. We want to show that, based on management of the dead, Protestants kept a community and religious cohesion featuring distinctive signs. They showed fidelity to their religion while changing their organization and practices.

### **Muslims, Jews and Christians Burying Their Dead All Together in Early Medieval Europe: The Iberian Evidence**

**Alfonso Vigil-Escalera** (University of the Basque Country, Vitoria-Gasteiz)

It is commonly accepted that during classical Antiquity the necropolis were used by a wide range of families and social sectors within a given community. It is not correct, however, to assume that Early Medieval cemeteries were restricted to fideles (Lauwers 2005: 166). Spanish commercial archaeology has provided a striking repertoire of new sites and an overall advance of archaeological knowledge during the last two decades. Historical narratives concerning rural settlement between 400-900 AD have also been substantially revised, and the same is true of our understanding of funerary practices

and the key role played by cemeteries in the social display of communitarian belonging and the reinforcement of local identities. Despite having been traditionally emphasized by medieval scholars, the general impact of religious issues upon burial practices in Early Medieval communities must now be tempered, if not directly considered marginal. Several sites recently discovered demonstrate that religious beliefs and institutions did not condition the management of funerary space in towns and the countryside at least until the 10th-11th centuries.

### **Death in a Diachronic Perspective. The Case of Iceland**

**Orri Vésteinsson** (University of Iceland, Reykjavík)

The location and composition of cemeteries represents important information about social structures. In order to make the most of this information it is critical to be able to hypothesize about the relationship between the cemetery and the community it served. A cemetery may serve a single household or whole cities and it may be exclusive to such units or accept outsiders as well. A cemetery can also be reserved for particular groups – based e.g. on gender, age, class, ethnicity or religion – which may cut across settlement communities or be subsets of them. An attempt can be made to reconstruct the patterns of burial for any given society, to define its burial paradigm. This can be revealing of social structures but it becomes particularly informative when studied diachronically. To demonstrate the potential of this approach the case of Viking Age to early-modern Iceland will be considered. In Iceland the burial paradigm changed considerably against a backdrop of relative settlement stability and in ways that cannot be accounted for by religious change alone. Religion is an important aspect of the story but many other important issues are illuminated by adopting this approach.

### **The Same, but Different. Consistency and Variation in Choosing the Place of Burial at Prehistoric Communities**

**Raluca Kogalniceanu** (Giurgiu County Museum, Giurgiu)

When it comes to the Copper Age, there is not much we can rely on in our research other than the bare discoveries. Based on the quality, quantity and nature of data available, we can try to shed light on various aspects concerning the way people lived and died. When it comes to burial practice, one aspect that is as interesting as it is difficult to interpret is the choice of burial place. An analysis of 35 settlement and cemetery pairs attributed to the Gumelnița cultural complex allows observations of both common traits and local or zonal variation. For the interpretation of elements that might have stayed at the basis of some of the common or different choices the Prehistoric communities made, I turned to ethnographic records, especially those related to the image traditional communities north of the Danube had about the topography of the other world.

### **Burial Grounds, Burial Habits and Communities in Rough Cilicia (Isauria) in Long-Term Perspective (Late Hellenistic through Early Byzantine Periods): An Overview**

**Veronica Iacomì** (“Sapienza” Rome University, Rome)

Among the most common and best preserved monuments of Rough Cilicia (late Antique Isauria, modern Turkey), tombs and cemeteries of the region offer a wide variety of burial customs and during a long time-span (II/I c. BC – VI/VII c. AD). Many cemeteries, in fact, were reused through the centuries, but undeniably transformations in religious and funerary habits may be traced, together with constant preferences accorded to location or tomb architecture. In the frame of an overview of the main necropolises of the region, special attention will be given to those case-studies which offer an interesting perspective on specific topics such as: location of cemeteries/single tombs in regard to urban topography and/or natural landscape; value and meaning of the tomb as arguable by location, inscriptions, and other features (reliefs, symbols, architectural decoration) in a given period/micro-region; ideological aspects related to local funerary traditions as well as to the acquisition of foreign models; information on the dead conveyed in the funerary inscription (when and where available) as a reflection of punctual beliefs, strategies, and religious and civic values. In this sense, the Cilician example, with its specificities and peculiarities, will contribute on the debate about burial communities in a long-term perspective.

### **Ancestors on the Landscape. Burial Topography in Early Medieval Central Iberia**

**Iñaki Martín Viso** (Universidad de Salamanca, Salamanca)

The aim of the paper is the analysis of early medieval burial sites of graves dug into the rock in central Iberia. The memory of ancestors was an important way in which burial areas gave a landscape plenty of meaning for the communities. The study of some cases (the regions of Ciudad Rodrigo and Sierra de Ávila and the sites of La Genestosa and La Coba) reveals the creation of a communitarian identity thanks to these burial areas. There were two different types of topography, isolated graves and disordered cemeteries, but both were not related with any ecclesiastical building. However, the landscape has been deeply transformed thanks to the implementation of the parish system in 12th-13th centuries. The data of some charters related to the parishes of the bishopric of Ávila shows that the new churches have been built on new places and the early medieval burial areas have been abandoned.



## Viking Burial Landscapes in Iceland

**Adolf Friðriksson** (Institute of Archaeology, Reykjavík)

In recent years, all known pagan burial sites in Iceland have been surveyed. The survey has revealed a new understanding of the placement of burials in the Viking Age.

## Ultuna, a Key Site for Understanding Early Medieval Burial Change

**Helena Hulth** (Societas Archaeologica Upsaliensis, Uppsala)

Ultuna along with Vendel and Valsgärde is one of the well-known Early Medieval (550-1100) boat grave sites in the Uppsala area. The place gained attention already in the 17th century for at least 700 visible grave mounds. In the core of Ultuna the burials date from around 550 AD to the early Christianization phase around 1100 AD. Unfortunate circumstances led to uncontrolled devastation in the 19th and beginning of the 20th century, resulting in a major loss of source material. During the last decade however, several excavations have taken place and revealed traces of an expected aristocratic settlement, ritual spaces and handicraft areas, as well as cremation burials. We can now start to interpret the multi-faceted entity of the site. It seems that the people who inhabited Ultuna chose their location with great care. On the key entrance to the Uppsala plain they organized one of the largest villages in the area, with strong martial evidence in the grave material. The establishment has played part in and can exemplify major societal changes in the 6th century, contemporary with the rise and long continuity of Gamla Uppsala.

## The Interface between Modernity and Burial Traditions in Northern European Cemeteries from the Late 18th to the 20th century

**Sian Anthony** (Lund University, Lund)

From the end of the 18th century there was a change in burial patterns within Northern Europe, moving from local parish churches situated within the community to large municipal cemeteries on the outskirts of urban areas. These cemeteries are still in use today and although they may appear to be a homogenous type they contain great variability. Although at first dominated by Christian ideals there was an increasing need to accommodate other religions and identities in the modern world. The case study of an excavation in Assistens cemetery, Copenhagen is used to investigate the different influences active within the modern cemetery. The landscape features and material culture above-ground and the burial traditions below-ground display the commonalities between groups but also the changes surrounding different beliefs and attitudes towards death and the disposal of the dead that have taken place in the last few centuries. How modern cemeteries and burial traditions are organised and used may be seen in reaction to, or even creating the rapid changes within modern society.

## POSTERS

### Burials in Medieval Rural Communities: A Case in the Cantabrian Mountains

**Margarita Fernández Mier** (University of León, León)

In recent years the archaeology of medieval rural North of the Iberian Peninsula has seen a major revival owing to the recent studies of currently inhabited and deserted villages. The approach to these sites from an overall perspective has led to the excavation of settlement areas, the agricultural and livestock production and burial sites, in an attempt to acquire a complex understanding of rural communities. In this paper, we present the preliminary results of the archaeological work carried out in the village of Vigaña. In this mountain village, we have excavated the parish cemetery, which has a continuity of occupation from early medieval times to the present day. In addition, we have begun excavating another burial area on the territorial limits of the medieval village. Drawing on this evidence, we set out an understanding of the graves in the broader landscape framework. This involves carrying out a reading of how individuals express themselves within the community through the graves, as well as their role as landmarks associated with the creation of a collective identity related to the territoriality of the villages.

### Changes in Burial Practices during the Late Bronze Age in Central Europe

**Michaela Lochner** (Institute for Oriental and European Archaeology, Austrian Academy of Sciences, Vienna)

At the beginning of the 13th century BC, the cremation burial characteristic for the Urnfield culture asserted itself. This profound change in the burial rite, the burning of the dead on a pyre, becomes the primary and identity development serving ritual of this community and can also be viewed as an external expression of the change in spiritual-religious beliefs. By means of examples of chosen burial grounds of the Middle Danubian Urnfield culture, an analysis of this change of rite as well as an overview of interment and burial offering customs of this time period between 1250 and 750 BC will be presented.



## **T06S028 - CONTEMPORARY ART & ARCHAEOLOGY, CROSSROADS BETWEEN SCIENCE AND ART, DIALOGUES AND DISCOURSES (Round Table Session)**

**Organizers:** Kristian Kristiansen (University of Gothenburg, Göteborg), Chris Gosden (University of Oxford, Institute of Archaeology, Oxford), Kai Salas Rossenbach (Inrap 7, Paris)

Archaeology and art find themselves at the convergence of human knowledge and experience. Thus, archaeology is often an archaeology of art and the art history is often based on archaeology. But beyond this academic perspective, there is a growing interest in the contemporary art towards the archaeological feature, both as a process and as an object (e.g. Land art by Richard Long or Andy Goldsworthy; the pottery destruction by Ai Wei Wei, etc.). The archaeological themes such as the past, the remains, the landscape, the disappearance, the monumentalization etc. are currently present everywhere within the contemporary art field. As for the archaeologists, the renewal of their profession, methods and paradigms leads to the creation of new research fields and social interactions. Therefore, the artistic medium interests the archaeologist and vice versa. Indeed, the artistic and the archaeological object rely on the same function: the testimony. Both are vestiges, one of the artistic creation, the other of the human activities. Thus, a convergence can be found between the exploration methods of both disciplines, the search for the buried and for meaning, the revealing of the core through its margins. An unsuspected richness can be revealed when combining these two universes, the one of the reflection and the one of the materialization of the discourse on the past and on humanity. From the richness of this creative confluence have emerged the various paths that the NEARCH network (European Commission -Culture Programme -2007-2013) wishes to explore, namely: - a reflexive, imaginary and materialized vision of archaeology - an innovative story telling of the past accessible to all audiences - the acknowledgement of the artistic as a real link within a research process The round-table is intending to gather archaeologists, art historians and artists in order to discuss the potential of contemporary art and archaeology interactions in terms of theoretical schemes and practical achievements.

### **ORAL PRESENTATIONS**

#### **The Materiality of the Invisible**

**Lex ter Braak** (Jan Van Eyck Academie, Maastricht)

With all differences visual artists and archaeologists share manyfold attitudes, modes of thought and outlooks - varying among others from the importance of looking, researching, finding, creating, interpreting, presenting. Under the title of THE MATERIALITY OF THE INVISIBLE these similarities will be thoroughly researched and defined. Both art and archaeology are facing new challenges in changing times and altering cultural attitudes, they have to rethink their practice and discipline in such a way that they can bridge the gap to a wider audience. Their all too familiar ways of presenting and showing the results of their working process is in the need of renewal. Looking at each other, asking the right questions can open up the door to the future.

#### **Archaeology Interfacing Art and Science. An Experience and Experiment with Music in the Hypogeum Museum in Malta**

**Torill Christine Lindstrøm** (University of Bergen, Bergen), **Ezra B. W. Zubrow** (University at Buffalo, Buffalo / University of Toronto, Toronto / University of Cambridge, Cambridge)

Archaeology is unique in cooperation and integration with numerous sciences as well as various forms of art. Concomitant to recent developments in archaeology towards a greater focus on human culture as materialized expressions of the imaginary, creative, and reflexive in human existence; the need to explore these facets through practices of artistic conceptions and experiences in the actual present, rapidly develops. There is an increasing concourse, confluence, and convergence between science and art taking place within archaeology. This opens up new research venues and methodologies, and new ways of presenting cultural heritage to all audiences. The Hypogeum in Malta is a UNESCO World Heritage site that is unique in its appeal also to be experienced auditory. The acoustic properties of the Hypogeum are such that all sounds are experienced in peculiar and particular ways. The acoustics and their neurological concomitants are investigated. Based on this, we conducted acoustic experiments with sounds, song, and music in the Hypogeum, February 2014. Our conclusions combine sciences and art-experiences. We hope to contribute to a more comprehensive understanding of the experience of art in connection with prehistoric sites and rites; and implicitly suggest ways of presenting the Hypogeum to the audience by auditory art.

#### **New Lödöse – A Cross-Cultural Interpretation Project in NEARCH**

**Anita Synnestvedt** (Department of Historical Studies, University of Gothenburg, Gothenburg)

In the city of Gothenburg, Sweden there is a huge ongoing building project (2013-2017). New houses, new bike lanes and a new public transport hub will be built. Under the new there is another city that has been more or less hidden for hundreds of years – the first Gothenburg- New Lödöse. Currently archaeologists and other scientists work intensively to excavate and

investigate the traces of the old city. The question now: How can one convey the results and new knowledge to the public, to schools and to an interested audience? Publications, social media, guided tours and websites are tools that are used. But how will the story continue to be told and what story will it be, when the excavation is finished? How can archaeologists and artists share the interpretation and communication issue in order to enhance knowledge and reflexivity inside and outside the heritage institutions? The project New Lödöse is together with similar projects in Thessaloniki and Saint Denis used within the NEARCH project as case studies for discussing these issues. The presentation will account for the Gothenburg process, ask questions and draw more general conclusions regarding the archaeology and art in contemporary society.

### **Excavating Contemporary Art : The Déjeuner sous l’herbe of Daniel Spoerri**

**Jean-Paul Demoule** (Université de Paris I - Panthéon-Sorbonne, Paris)

Daniel Spoerri belongs to the French Movement of the so-called “Nouveaux réalistes” of the 1960’-1970’. He is well known for his “tableaux-pièges”, tables with meals transformed in masterpieces for museums. In April 1983, he decided to close the sequence of the “tableaux-pièges” with a last performance: he buried in a large trench the tables and plates of a big meal of about hundred people, belonging to the French “happy few” of the art at that time. In June 2010, a team of the Inrap, as a new step of the performance, excavated a part of the trench and could make some archaeological conclusions, as the gap between memory and real facts. A cast in bronze was also made, transforming in durable piece of art an ephemeral event. Archaeology, now independent of art history, meet nevertheless contemporary artists in searching and understanding what happened with the material culture of the societies.

### **Exploring Landscapes, Sharing Expertise: The English Landscape and Identities Project, Oxford**

**Anwen Cooper** (University of Oxford, Oxford), **Miranda Creswell** (Institute of Archaeology, Oxford)

Recent studies in philosophy and the social sciences (e.g. Marchand 2010, Whatmore 2002) have argued that knowing the world is not a process that happens in the mind - a disembodied space at some distance to the body - but rather through processes of engaged activity in the world, so that the activities of the body produce an understanding of the world and its key relationships. If we take such a view then different forms of activity create varied ways of knowing which are not better or worse, but simply different. This paper relays how an ongoing creative collaboration between archaeologists and an artist on the English Landscape and Identities project, Oxford has led all of us to think differently about the nature of the landscape, and also how we represent complex data visually, through maps and other means.

### **“The Unique Result of a Unique Temperament”. Seeing Texture through the Making of Art: A Multidisciplinary Approach**

**Helen Chittock** (University of Southampton/British Museum, Southampton), **Joana Valdez-Tullett** (University of Southampton/CEAACP, Southampton)

This paper discusses the outcomes of a project entitled Archaeology with Art: Space, Context, Fabrication and Gesture, which has grown out of a session at TAG 2013 of the same name, led by the two authors. Bringing together the work of archaeologists and artists, the session explored the ways in which the study of the process of making art might allow archaeologists to access a greater and more nuanced understanding of art and its effects and contexts in the past. Aspects of making such as design, innovation, accessibility, memory and social interaction were discussed. The focus of this paper is on the way in which the study of the practice and process of making might be used as part of interpretative archaeological methodologies to see texture and variation in what appear initially to be uniform assemblages. Two brief case studies on Atlantic Rock Art and ceramics from Iron Age East Yorkshire (UK) will be discussed, demonstrating the way in which the physical and technical gesture of art can change our understandings of both site-specific and portable art. By employing the subjective, human experience of the practice of art in the present, we aim to access its effects in the past.

### **Art and Archaeology in Progress**

**Thérésia Duvernay** (INRAP, Paris), **David Raynal** (INRAP, Paris)

In order to offer another “reading grid” and reach new audiences, especially young audiences, Inrap is engaged in a process of recovery of archaeology through contemporary art, on the occasion of two exhibition projects in progress: - an artist in residence in “On the rails of history” that circulates in the west of France (Le Mans, Rennes...); - the presentation of the search for Daniel Spoerri’s latest “canvas-trap” in “Once upon a time Niki’s band... and the New Realists” at the Musée en Herbe in Paris. Both exhibitions will lead to an assessment with the artists and a study on public expectations and representations. The data will help to better understand the implementation of this dialogue between “art and archeology,” renewed by the recent contributions of archeology to the knowledge of the contemporary period and artistic production since the beginning of the twentieth century.

## **Reconnecting with Public Monuments: Dynamically Generated Site Specific Music**

**Stuart Jeffrey** (Glasgow School of Art, Glasgow), **Paul Wilson** (Glasgow School of Art, Glasgow), **Daisy Abbott** (Glasgow School of Art, Glasgow)

Public monuments have a long history in the United Kingdom occupying highly visible locations in our major towns and cities, however it is noticeable that a whole swathe of such sites have become so much a part of the urban landscape that it is to all intents and purposes ignored by the population in general. These monuments have a lot to tell us both about the development of style, practice and technology, but also a huge amount about our heritage; scientific, political, industrial and social, as well as and the national and imperial identity construction narratives dominating at the time of their erection. This project has researched and developed a pilot system (using streaming audio and fine grained geo-location), based in George Square in Glasgow, to deliver innovative new musical compositions that connect directly to these forgotten works in order to re-inspire interest in both the artists and their subjects and to re-engage citizens with a pre-existing body of work. This has the potential to enrich their everyday lives as a largely forgotten layer of interest, historical information and artistic merit is brought to the fore-front of their minds through a combination of the distinct domains of music and heritage.

## **N/A: Round Table Discussion**

**Burak Delier** (University of Cincinnati Department of Classics, Cincinnati), **Hüseyin Çınar Öztürk** (University of Cincinnati Department of Classics, Cincinnati)

When one thinks of the intersection of contemporary art and archaeology, what comes to mind is usually along the lines of aesthetic reinterpretation of ancient artefacts by artists, which often leads the archaeologists to reevaluate the symbolic meaning and/or function of the said artefact. However, we believe that archaeology may provide the artist with a rather different source of inspiration. Today, especially in the highly politicized milieu of contemporary art, artists frequently question issues of national and social identities, and view the individual first and foremost as a political agent. Archaeology's role in nation-building processes / nationalisms, and the inevitably political nature of historiographical analyses of archaeological research give the contemporary artist a tool to understand the public perception of the past; which, in turn, plays an important role in the formation of modern identities. As our contribution to the round table, we - a contemporary artist who has been producing political works throughout his career, and an archaeologist who has been studying issues of identity and historiography - will try to reveal the potential of archaeology for the politically-driven contemporary art. As a result of our collaboration, it is planned that a work will be produced by Burak Delier.

## **Archaeological Imaginations through Map Art**

**Piraye Hacıgüzeller** (University of Oxford, Oxford)

The relationship between artistic practice and the archaeological research process has been troublesome, suffering from a dichotomy between art and science. That is, if the archaeological research process is a "scientific" one (in the sense of being based solely on empirical observation), it would barely accommodate the creativeness, subjectivity and imaginations often considered to belong to the realm of art. Similarly, given their historically stable relationship with "science", which is hard to challenge, archaeological maps and map-making are hard to envision as art objects and as an artistic process that can enact new relations in archaeological research. In the presentation, I will be seeking to address, from a genealogical perspective, some of the difficulties one might encounter while imagining archaeological maps' artistic contribution to the archaeological research process. Put differently, my principal aim in the presentation will be to describe an intellectual soil that hinders germination of archaeological imaginations through artful mapping in archaeology. "What may archaeological map art look like" and "what would be the agency of archaeological map art", will be the two questions I will be elaborating on in the final part of the presentation.

## **The Tuza Project: Sound Installation Based on Audio Samples of Prehispanic Aerophones from Colombia's Indigenous Ceramic Production**

**Adriana Guzmán Umaña** (Universidad del Valle, Cali)

Tuza refers to a ceramic production related to Pasto's indigenous communities that inhabit the highlands of Nariño in the Colombian southwest between 1250 – 1500 C.E. Sonorous objects in the space of museums are confined to be muted and remain silent, since manipulation carry on degradation of the object. This paper presents results from a creative-research project based on the idea of sound as cultural heritage. The project pursues the use of digital technologies to approach studies in archaeomusicology and composition. Digital audio platforms are used to record, edit, and processing samples, collect and transform sounds produced by these snail-shaped flutes. The sound installation creates an immersive environment on a surround speakers system, bringing to the audience the experience of an intermedia-time art form,

in which sounds of these artifacts are presented through a contemporary view of composition. The artistic proposal is supported by an interdisciplinary research involving typology, design, morpho-acoustics, spectral analysis, as well as plausible assumptions about cultural meanings, with the intention to bring audiences into the cosmovisions and beliefs related to these Andean prehispanic communities. The project is supported by Universidad del Valle (Cali, Colombia); the collection belongs to the archaeological museum in campus, Julio Cesar Cubillos.



## **T06S029 - BAYESIAN CHRONOLOGICAL MODELLING IN ACTION**

**Organizers:** **Alex Bayliss** (English Heritage, London), **John Meadows** (Zentrum für Baltische und Skandinavische Archäologie, Kiel)

This round table will aim to illustrate the use of Bayesian chronological modelling in archaeology and provide an understanding on how such dating can be produced. It has been shown beyond question that informal, visual inspection of radiocarbon dates regularly leads to inaccurate inferences of chronology, and already published projects show the clear need for a formal approach (and see, for example, the session T06S008 Bayesian chronologies for the European Neolithic at this conference). Many new projects are underway on this basis, but one serious constraint is the current shortage of trained and experienced modellers. This session will not consist of research papers, nor be a basic training session as such (eg on OxCal). Rather, we will offer a number of expert speakers to give talks illustrating different aspects of formal modelling: including simple site models, more deeply stratified site models, tree-ring wiggle-matching, environmental sequences, and culture/artefact models. This session is not region- or period-specific and will include a wide ranging set of presentations with plenty of discussion time. We also want interested colleagues to contact us later in the conference, including during a specific 'help-desk slot' to talk informally through their archaeological problem with a more experienced modeller, or simply to get help with the mechanics of model building and sample selection.

## **ORAL PRESENTATIONS**

### **Scatter Matters**

**Seren Griffiths** (Manchester Metropolitan University, Manchester)

Scientific chronological techniques (eg radiocarbon, OSL, archaeomagnetism) produce measurements with error terms, which derive from lab uncertainties. At some point in the result range the archaeological "event" of interest took place. For radiocarbon (and other techniques), there is the added issue of calibration, in the case of radiocarbon, to take account of fluctuations in  $^{14}\text{C}$  over time. Traditionally some archaeologists visually inspected groups of calibrated radiocarbon distributions to write chronological narratives. This approach can be misleading, because groups of associated results from archaeological events, or phases (such as the use of structure or site) are not independent measurements, but are related. Associated measurements will scatter around the real points in time when archaeological phases began and ended because of the inherent measurement errors. Without accounting for this scatter, we risk interpreting measurement error (derived from laboratory uncertainties) as archaeologically meaningful — with significant implications for the chronological narratives we produce. Bayesian analysis offers a means to examine groups of measurements, to counter-act statistical scatter, and to revise understandings of related chronological data. A Bayesian approach to sample selection can result in the efficient use of limited financial resources, significantly constraining models, producing more precise ranges, and providing more "bang for buck".

### **Realism and Results: The Bayesian Process in Action**

**Frances Healy** (Cardiff University, Cardiff)

To maximise the chronological potential of scientific dating evidence from a particular site or other data set, it is necessary to formulate the questions that one would like to ask; to assess the potential of the available material for answering them, and to construct an appropriate sampling strategy. In the light of reality it may be necessary to formulate alternative questions. In either case, simulation studies should ensure that the available samples make it possible to achieve the study's objectives. The Bayesian framework allows us to address these issues explicitly. These points will be illustrated by applications of simple models to sites with and without stratigraphic sequences. The importance of freshly-deposited, short-life single-entity samples will be demonstrated.

### **Bayesian Approaches to Palaeoenvironmental Chronologies**

**Benjamin Gearey** (University College Cork, Cork)

A significant problem that has long circumscribed the closer integration of archaeological and palaeoenvironmental data sets concerns establishing the chronological relationships between patterns and processes of change interpreted from



each record. Such an undertaking must begin with an assessment of the chronological robustness of individual palaeoenvironmental sequences. Imprecise or flawed chronologies, can only lead to flawed interpretation of the associated palaeoenvironmental record, to misleading correlations with the archaeological record and hence incorrect assessments of the temporal relationship between cultural and environmental changes. This paper considers how the Bayesian approach allows us to deal in a robust and explicit manner with a range of issues associated with building robust chronologies for palaeoenvironmental records and linking such data directly to associated archaeological chronologies. The critical importance of careful sample selection for radiocarbon dating of 'difficult' deposits such as peats and organic sediments will also be highlighted and the importance of specialist input to ensure that the value of otherwise highly detailed palaeoenvironmental records derived from such deposits are not undermined by inadequate radiocarbon dating programmes. It will also demonstrate how the Bayesian approach can be used to establish the relative orders of archaeological and palaeoenvironmental 'events' and thus allow us to build increasingly sophisticated models of human-environment interactions.

### **I Need a Little Wiggle Room: Fitting Sequences of Radiocarbon Dates to the Calibration Curve**

**Derek Hamilton** (Scottish Universities Environmental Research Centre, East Kilbride)

In Bayesian chronological models, most archaeological dating is obtained from series of radiocarbon dates that are either stratigraphically ordered (Sequences) or in unordered groups (Phases). There is a sample type that is uncommon for most prehistoric archaeologists, which lends itself to a tightly constrained sequence. This is the tree-ring sequence. While tree-ring sequences are often subjected to dendrochronological analysis, when tree-ring dating fails the rings can be subjected to radiocarbon analysis and wiggle-matching. This approach will be examined along with advanced approaches to wiggle-matching that combine these highly-precise modelled data within a larger model that includes other radiocarbon data.

### **Straight-Laced Sequences: The Joys and Responsibilities of Archaeological Constraint**

**Alex Bayliss** (English Heritage, London)

Archaeological sequences form strong 'informative' prior information for Bayesian chronological models that can help to maximise the impact of a series of radiocarbon dates. The power of these constraints brings danger and responsibility, however, since they affect the output of a model very strongly. The sequence, the scientific dates, and the relationships between them all have to be specified exactly and correctly if precise and accurate chronologies are to be produced. Such demanding strategies are not without risk. Ways of assessing the strengths, weaknesses, and risks of such applications are illustrated using a set of diverse examples from across Europe. These range from the 19m stratigraphy of the seventh millennium BC tell at Çatalhöyük East, Central Anatolia and alternative approaches to dating smaller Neolithic tell sequences from south-eastern Europe, to sequences derived from artefact typology and seriation from the Bronze Age to early Medieval periods of Britain and Ireland.

### **Outliers, Offsets, and Misfits: Dealing with Potentially Misleading Dates**

**John Meadows** (Zentrum für Baltische und Skandinavische Archäologie, Kiel)

The term *outlier* is often used for any calibrated date which fits poorly in a Bayesian chronological model. Models can be designed to reduce the influence of radiocarbon measurements that are genuine *statistical* outliers, but poorly fitting results are often not statistical outliers, as a second date from the same sample would not fit the model any better. Such a sample may be a *misfit* (much older or younger than its position in a sequence), or may embody an *offset* – in its calendar date (e.g. wood-age offset) or radiocarbon age (e.g. reservoir effect). In most such cases, the sample's radiocarbon event appears older than the associated archaeological event (e.g. its deposition). Offsets and misfits are not always detectable, and can thus lead to spurious chronologies. Misfits are almost irrelevant to the real dates of a sequence, and should be omitted. Results that may be subject to significant offsets can still be useful, however, particularly if we employ a realistic model of the scale and frequency of offsets; simply omitting any dates from sample types that could present offsets (e.g. charcoal, human bone) can itself be misleading. This paper discusses how best to use results from such samples in Bayesian models.

### **Constructing Chronologies That Lie Outside the Box**

**Peter Marshall** (English Heritage, Sheffield)

Bayesian approaches to chronological modelling are flexible enough to allow information from many different sources to be included. Given the real world, both human and natural, is far from simple, the need for models that can adequately deal with its complexity is paramount if our reconstructions of human activity or environmental change are to have any validity. Drawing on case-studies that attempt to model processes such as developments in material culture and environmental and climatic change, examples will be discussed from recent attempts to think outside the standard box for constructing Bayesian chronological models.

## Pandora's Box: The Misuse of Bayesian Chronological Modelling

**Erio Valzolgher** (Ricerche Archeologiche snc/Archäologische Untersuchungen OHG, Bressanone/Brixen)

Over the past decade the use of Bayesian chronological modelling has become increasingly widespread. However, this has sometimes led to a decline in the quality of models, often because researchers are self-taught in Bayesian modelling. Bayesian chronological modelling might involve *subjective judgments*, but that does not mean there are not better and worse models according to *objective criteria*. Drawing upon a survey of the literature, the paper illustrates the most common types of error encountered.

## Round Table Discussion

**Peter Barta** (Comenius University, Bratislava), **Nancy Beavan** (University of Otago, Dunedin), **Anthony Denaire** (University of Strasbourg, Strasbourg), **Doug Kennett** (Pennsylvania State University, State College), **Krisztián Oross** (Hungarian Academy of Sciences, Budapest), **Marko Sraka** (University of Ljubljana, Ljubljana)

An international panel of archaeologists with experience of Bayesian modelling will respond to the topical presentations, by debating the application of Bayesian techniques to real archaeological problems. What, if any impact has Bayesian chronological modelling had on archaeological thinking in different regions and periods? Can Bayesian modelling deliver what archaeologists actually want to know? Are there important chronological questions that are not amenable to Bayesian methods? Which aspects of Bayesian modelling are most under-utilised? Can we translate the jargon and the ideas successfully, or are the concepts as well as the terminology too Anglo-centric? Is there a Bayesian community, and is it dangerously isolated within archaeology? Could Bayesian modelling do more harm than good? How do we assess the competence of the modeller and the validity of the model? Will dating be focussed on periods and materials with greatest potential for Bayesian modelling, rather than on periods and regions which are least understood? Alternatively, are other aspects of archaeological interpretation struggling to catch up with the potential offered by Bayesian chronological models? Will the development of more reliable and precise chronological frameworks transform what archaeologists think are the important research questions? Contributions from the audience will also be welcome.



## T06S030 - MULTIPLE VIEWS ON EARLY PREHISTORY

**Organizers: Erksin Güleç** (Ankara University Anthropology Department, Ankara), **Marianna A. Kulkova** (Herzen Pedagogical University, St.Petersburg), **İsmail Baykara** (Yüzüncü Yıl University Anthropology Department, Van)

The origin, sustainability and the evolvement of our genus is a multifarious process that involve wide range of topics, from physical properties to environmental or climatic fluctuations, all being of crucial importance. It is also evident that the climatic conditions had played a significant role in cultural-historical process and in developing adaptation strategies to changing environmental conditions. It is generally accepted that with the onset of milder climatic conditions by the final stages of the Pleistocene not only provided means to improvise new means of subsistence, but also stimulated the development of new technologies, significantly ameliorating way of living. The remains of early modern humans reflect cultural and individual behaviors that are substantially more complex than the earliest *H.sapiens sapiens*; but which behaviors and ecological conditions allowed us to become the dominant species throughout the world by about 40.000 years ago? We expect that this session would be the place to learn what is already known and not known in the world prehistory and to plan effective research strategies for the future.

## ORAL PRESENTATIONS

### The First Moderns in Anatolia: Üçağızlı Cave

**Erksin Güleç** (Ankara University Anthropology Department, Ankara), **İsmail Özer** (Ankara University Anthropology Department, Ankara), **İsmail Baykara** (Yüzüncü Yıl University Anthropology Department, Van), **Mehmet Sağır** (Ankara University Anthropology Department, Ankara), **Serkan Şahin** (Ankara University Anthropology Department, Ankara), **Cem Erkman** (Ahi Evran University Anthropology Department, Kırşehir), **Ayşen Açıkkol** (Cumhuriyet University Anthropology Department, Sivas)

Üçağızlı cave is an Upper Paleolithic locality situated on the Mediterranean coast of south-central Turkey, a short distance south of the mouth of the Orontes River. Üçağızlı, excavated from 1997 and to 2013, preserves a deep sequence (> 3 m) of early Upper Paleolithic deposits. The site represents the remnants of much larger, collapsed karstic features. The area of intact sediments in the site is small, but the density of materials is very high. Intensity and/or duration of occupations varied over time in Üçağızlı. The uppermost layers in Üçağızlı (B, B1B3), which contain an Ahmarian industry, are associated with an intense, and perhaps prolonged occupation. In contrast, the lowest layers at Üçağızlı I (F, G, H), which produced an Initial Upper Paleolithic (IUP) industry, were created through a series of more episodic, shorter-term, occupations. The cave

was a center for different cultures throughout the initial Upper Paleolithic and early Upper Paleolithic. The main cultural differences are represented by advances lithic technology, specific hunting strategies, systematic settlement patterns, high mobility capacity and land use, and finally coordinated ornament use. These kinds of material culture indicate the presence of modern human behaviors. In this study, we discuss ornament manufacture and their function in social life.

### **The Middle Paleolithic of Üçağızlı Cave**

**İsmail Baykara** (Yüzüncü Yıl University Anthropology Department, Van)

The origin, sustainability and the evolution of our species is a multifarious process that involves wide range of topics, from anthropological features to environmental or climatic fluctuations, all of crucial importance. It is also evident that the climatic conditions played a significant role in cultural-historical process and in developing adaptive strategies to changing environmental conditions. It is generally accepted that the onset of milder climatic conditions by the final stages of the Pleistocene not only provided means to improvise new means of subsistence, but also stimulated the development of new technologies, significantly changing way of living. The remains of early modern humans reflect cultural and individual behaviors that are substantially more complex than the earliest *H.sapiens sapiens*. Was it these behaviors and ecological conditions that allowed us to become the dominant species throughout the world by about 40.000 years ago? We expect that this session is the place to learn what is already known, discover new factors and to plan effective research strategies for the future.

### **A Morphometric Study on the Üçağızlı Wild Goats**

**Derya Baykara** (Yüzüncü Yıl University, Van), **Ayşen Açıkkol** (Cumhuriyet University, Sivas)

In this study, wild adult goats' bones from Üçağızlı Cave sampled from the Initial and Early Upper Paleolithic are studied. Within the scope of this study we made a data base from literature of wild and domestic goat metric measurements from archaeological sites in different periods in the Middle East. The aim of this study is to investigate size changes depending on with climatic changes, time and domestication for the goats from the Upper Paleolithic. For the statistical analysis basic osteometric measurements and log-ratios indices (LRI) were used. The significance for the size differences as to periods were investigated by using t-test. The research shows that the wild goats found at Üçağızlı Cave in Upper Paleolithic period are bigger in size than all later goats.. The Late Upper Paleolithic, which has a colder climate and the goats in this cold weather are larger in size than the Ahmarians goats living in characteristic warmer climate. The significant size reduction occurred during the Pre-Pottery Neolithic period and this is associated more with the process of domestication than with climatic conditions.

### **Archaeopetrological Study of the Lithic Industry from “La Roureda” Rockshelter (Vilafranca, Els Ports, Castelló, Valencian Country)**

**Mar Rey Solé** (Universitat de Barcelona Departament de Prehistòria Història Antiga i Arqueologia, Barcelona), **Didac Roman Monroig** (Universitat de València, Departament de Prehistòria i Arqueologia, Valencia), **Xavier Mangado Llach** (Departament de Prehistòria, Història Antiga i Arqueologia Facultat de geografia i història, Universitat de Barcelona, Barcelona)

The Epimagdalenian rockshelter of “La Roureda”, dated to  $11,350 \pm 50$  BP (13373-13122 cal. BP), is located in eastern Iberian Peninsula. The stone tool assemblage from the Roureda rock shelter includes a total amount of 4639 pieces made on flint and this presentation is the first approach to the analysis of the raw materials through its archaeopetrological study. Firstly, we proceeded to expose the results of the macroscopic and microscopic analysis, combining petrological and micropalaeontological techniques of all of the retouched pieces (268 stone tools). Secondly, we expose the first results of the geological surveys we have conducted in the site area, which has allowed us to study several sources of siliceous material. The analysis of these sources of raw material and their comparison with the stone tools recovered in the Roureda shelter have led us to make a first approach to the possible sources of supply of the epimagdalenien groups that occupied this rockshelter. This study is the first analysis of the raw materials that has been carried out in this area, so it will be a breakthrough for the knowledge economy of the prehistoric communities and helps us to understand the reason of certain human behaviors.

### **Environment and Ancient Cultures in the North-Western of Eastern Europe during Holocene**

**Marianna A. Kulkova** (Herzen Pedagogical University, St.Petersburg), **Dmitrij Gerasimov** (Peter the Great Museum of Anthropology and Ethnography RAS, St. Petersburg), **Andrey Mazurkevich** (The State Hermitage Museum, St. Petersburg)

The region of North-Western Russia connecting with Baltic Sea presents a dynamic ecological system that was sensitive to environmental changes at the end of the Last Glacial Period and during the Holocene. Some factors affected environmental changes in the region within the Holocene: deglaciation process, which finally terminated about 9000 cal BP; eustatic sea level changes; tectonic movements which are basically considered in the region as an isostatic uplift process; anthropogenic

activity. Contextual remains of ancient human occupation sites can be the only evidence of surface stabilization in monotonous sediments, such as aquatic and subaquatic deposits. The transgressive-regressive stages of Baltic Sea (at 10150 cal BP – Ancilus transgression; at 9400-8700 cal BP Littorina transgression; at 7000 cal BP transgression) have an impact on the positions of prehistorical sites. The complex investigations (lithology, geochemistry, pollen analysis, diatom analysis, radiocarbon dating) of the stone Age archaeological settlements on Karelian Isthmus and at Dvina-Lovat' basin allow us to reconstruct the paleoenvironmental changes during Holocene, chronology of cultural-historical processes and adaptation strategy of ancient people to environmental condition on this territory. These researches were supported by RFBR № 13-06-12057, 13-06-00548, 12-05-01121, RFH 13-21-01003.

## POSTER

### The First Inhabitants of Anatolia; Dursunlu

**Erksin Güleç** (Ankara University Anthropology Department, Ankara), **İsmail Özer** (Ankara University Anthropology Department, Ankara), **Mehmet Sağır** (Ankara University Anthropology Department, Ankara), **İsmail Baykara** (Yüzüncü Yıl University Anthropology Department, Van), **Serkan Şahin** (Ankara University Anthropology Department, Ankara), **Ayşen Açıkkol** (Cumhuriyet University Anthropology Department, Sivas), **Cem Erkman** (Ahi Evran University Anthropology Department, Kırşehir)

Anatolia is the most direct land route into Europe from the Levantine corridor and, more distally, from Africa. Dursunlu located in south-central Anatolia, is currently the oldest documented Paleolithic locality in Turkey. Paleomagnetic and paleontological evidence indicate an age of between 780-900 kya. The site is exposed in an abandoned lignite mine and was first investigated in 1993–1994 by a joint team from Ankara University, the University of California, Berkeley, and the Turkish Geological Service. Some human artefacts were also found, and the artifact assemblage consists mainly of flakes and flake tools of quartz and flint, along with a polyhedron and polyhedral cores. Based on the collection of material, the Dursunlu lithic assemblage suggests a technological system oriented toward production of small, unstandardized flakes. Both free-hand, hard-hammer percussion and bipolar techniques were employed. The unique chopper and polyhedron may have been cores or they may have been end-products. A wide variety of vertebrate remains also are present, ranging from microfauna through proboscideans; indicating thirty-eight mammal species. Over 40 bird species, also present at Dursunlu. No human remains were discovered.



### T06S031 - BUILDING MATERIAL AS TRANSMITTER OF CULTURE

**Organizers: Jesko Fildhuth** (Deutsches Archäologisches Institut, Berlin), **Umut Almaç** (Istanbul Technical University, Istanbul)

Materials for construction and individual elements of buildings have always been regarded as devices of cultural identities. The mobility of people and knowledge allow us to observe that different materials and elements may emerge far beyond the boundaries of their place of invention or development. From prehistoric period up to modern times, building materials and elements were particular culture goods circulating among “know-how creating” areas and “impact receiving” groups. Architectural remains bear evidence of cultural interrelations. Lack of certain materials at a given place, displacement of artisans, admiration for foreign styles, and many other motivations have added extra values to construction and architecture. The session has a special focus on the cultural depth of building materials and elements.

## ORAL PRESENTATIONS

### Egyptian Building Strategies at the Dawn of Their History

**Karolina Rosińska-Balik** (Institute of Archaeology, Jagiellonian University in Kraków, Kraków)

The aim of this paper is to characterize the development of the Nile Delta architecture at the era of Egyptian unification. The attempt will be made on the basis on interpretation of archaeological material. Excavation results indicate that, in the period decisive for the ulterior Lower and Upper Kingdoms, Egyptian architecture was profoundly transformed. The transformation was not only viewable in the form of constructed architectural layouts. The execution manner of spacious structures was evolving as well, and building material changed and was adapted to new needs. At this point, new issue, worth further studies, appears. The issue concern mud bricks' application. The main question is the origin of the material. The answer is especially important, when facing the fact that the opinion on Naqadan descent of mud bricks should be strongly verified. Another question is the manufacturing economy. The preparation process of this type of common material must have been simplified and fasted, but the question how simplified and how fasted remains. How much workload it required? How many ingredients were needed and in what quantity? How much time the preparation process, from bath

bricks to ready-to-use, required? And the final question we will try to answer, what area was necessary to produce and prepare sufficient amount of bricks?

### **The Significance of Columns in Iron Age Architecture in Northern Mesopotamia**

**David Kertai** (Tel Aviv University, Tel Aviv)

Columns are such a basic architectural element that their presence can hardly be expected to have a cultural significance. This paper will, however, argue that their use (or lack thereof) in Assyria and the Syro-Anatolian states reflects fundamental differences in how space was organised and used. The introduction of columns in Assyrian architecture during the late eighth century allows us to trace the way Assyrian architects were influenced by Syro-Anatolian architecture and how they Assyrianised these influences.

### **Colorful Combination of Stones in the Ancient Greek Architecture of Larisa (Buruncuk)**

**Gizem Mater** (Istanbul Technical University, Istanbul), **Ertuğ Denктаş** (Istanbul Technical University, Istanbul)

The architectural remains in Larisa (Buruncuk) display an original stone cutting practice which is based on andesite. One of the major characteristics of Larisaeen walls is the use of masonry blocks showing many different colors. A particular scale of colors ranging between bluish-grey and reddish-brown can be observed at local quarries in Larisa. The late archaic buildings such as Megaron and the defence walls of the tyrannical residence, as well as the 4th century buildings -the new palace and the restored fortifications among them- bear the vivid combination of andesite blocks. Only at one case (at Tower I where bluish-grey polygonal blocks are levelled with a flat reddish layer) it is possible to assume that the decorative purpose is emphasized. At other walls with random color combinations, practical and efficient use of stone must have played the most important role. At this point it should also be remembered that colored architectural terracotta plates once decorated the buildings of Larisa, applied on mud brick walls supported by stone wall bases. The use of andesite blocks of different colors, thus, perfectly matches with this special archaic approach in architecture.

### **Tales of Tiles: Using Roman Roof Tiles in the East (1st-5th c AD)**

**Pirjo Hamari** (University of Helsinki, Helsinki)

This paper will examine the use of ceramic roof tiles in the Eastern Mediterranean area after the expansion of the Roman Empire, and the social aspects related to their use. Through two case studies I will discuss roof tiles as a material group and the particulars of the two materials, excavated from a 5th century AD Early Christian basilica in N Greece and from a 1st-3rd century AD Nabataean-Roman house of Ez-Zantur IV in Petra, Jordan. This underexplored material is examined for its stylistic aspects, but also discussed as a carrier of cultural meanings. Specific attention is paid to the temporal transformation and hybridization of roof tiles due to local variations in a situation where power balances are changing and cultural influences fluctuating.

### **Pits and Perception. Ephemeral Architecture in Public Places**

**Lukas C. Bossert** (Humboldt-Universität zu Berlin/Exzellenzcluster Topoi, Berlin)

Looking at pits in Italic fora I will focus on the pragmatic dimension of ephemeral architecture. I will argue that these pits spread as a building technique due to their multi-functionality. Seemingly invariant, they served diverse local needs and allowed the public space to be used for various purposes, whether political, religious or other. These inconspicuous building materials provide important evidence then on how ephemeral buildings shaped the perception of public space (auditive, visual, climatic).

### **The Usages and Types of Binders in Roman Cilicia**

**Işıl Polat-Pekmezci** (Istanbul Technical University, Istanbul)

Binders are widely used in different types of constructions throughout history for different purposes such as to act as a bedding mortar in structural walls and coverings or as plasters and renders. To understand the properties of mortars and plasters is an important fact to comprehend the construction techniques in broader terms. East Mediterranean coast of Turkey known as Roman Province –Cilicia in history, hosts some of the important remains of the Roman Era in Asia Minor. Structural walls at different levels, partly standing domes, pavements and different types of plasters may be seen on the sites. The aim of this paper is to evaluate the construction techniques of Roman Cilicia and to understand the decisions made on the choice of the construction materials. In this context, constructive elements (such as walls, domes, mosaic beddings etc) from several sites will be observed and described in technical and architectural terms. Special concentration will be held on the types of the binders used. The results of current on going projects about the characterization of the mortars and plasters from the sites will be presented. The components of the mortars and plasters including binder:aggregate ratios and definition of the aggregates and other additives will be discussed. The presentation will certainly reveal possible relations with the material properties and the construction techniques and as well as be an analysis on local traditions and materials.



## Investigation of a Cistern in the Archaeological Site of Dara, Mardin

**Umut Almaç** (Istanbul Technical University, Istanbul)

The Roman tradition of water supply and distribution system continued in the Byzantine period. Open and covered cisterns of different sizes were constructed in order to store water brought from far away sources by means of conduits and aqueducts. The subject of this study is a cistern located in the archaeological site of Dara - Mardin, southeastern Turkey. Dara-Anastasiopolis was an important Byzantine fortress city in northern Mesopotamia. It was established right from the start as a military settlement on the eastern border of the Roman state during the reign of Anastasius (491-518). According to Procopius, an extensive construction and repair activity were carried out during the reign of Justinian I. This paper aims to identify the present condition of the cistern and to understand the water supply and distribution system of the settlement. In order to accomplish these tasks, the masonry structure and some fragments of water channels in connection was documented. In addition to site surveys, some laboratory tests were performed on specimens to understand the properties of the original construction materials.

## Storing up Roman-Byzantine Construction Materials for Ottoman Architecture

**Bilge Ar** (Istanbul Technical University, Istanbul)

Hagia Eirene Church had been converted into an armory depot shortly after the Ottoman conquest of Istanbul in 1453. In 1869 the first archaeological museum of Ottoman Empire was founded here. The origins of collecting antiquities in this building had been subject to several Ottoman museology researches, which mostly agreed on the date 1845 when a "Magazine of Antiquities" was organized on one side of the atrium. Ottoman archive documents from 16th century show that besides weapons some construction materials were also housed inside Hagia Eirene. Lists in these documents include materials meant to be used as spolia such as columns and carved valuable stones; marble, sandstone and green stone shaped for many different functions (coping stone, arch stone, base stone etc). Stones are also distributed in accordance with their colors ("black stone", "white column" etc.) and where they are brought from (Aydincik marble, arch stones from Mihaliç marble). In a way remains of Roman and Byzantine heritage, in this case as construction materials, were gathered inside Hagia Eirene, to be reused by the Ottomans. The remains of a past civilization were collected to reappear in the architecture of the new empire.

## Lübeck – Traditions, Individualities, Innovations

**Dirk Rieger** (Archäologie und Denkmalpflege Hansestadt Lübeck, Lübeck)

From the predecessor settlement and large Slavonic stronghold of Old Lübeck – Luibice – to the 1143 founded German Lübeck we could probably prove archaeologically a communication between local and interregional phenomena on a basis of architecture. Lots of excavated features of the 12-13<sup>th</sup> century of our project are houses of extremely well preserved conditions. Not only wattle-and-daub houses like in other Slavonic settlements, which are proven by written sources from the late 12<sup>th</sup> century, also the characteristic blockhouses, pits and late Slavonic potteries were excavated. In contrast there are traces of other influences, brought by the Saxons, Frisians and Westfalians: architecture made of sill beams, wall plates and posts with differentiated timber joints and detailed constructions. A very interesting feature from the end of the 12<sup>th</sup> century is for example a small timber-cellar, which combines both the log and the sill-constructions. So it seems as if there are traditions, individualities and innovations caught in the preserved architecture that can be identified by the archaeologists. But as the economy and the importance of Lübeck grew, the individual architecture of the 12<sup>th</sup> century made way for a kind of standardised design. Sill beam constructions and big timber cellars were found at nearby every plot, all erected in the same way. This might be seen as the standard-Hanseatic-buildings, which are seen as the prototypes for all the other German towns on the Baltic Sea.

## Repair Materials as an Indicator of Monument Perception

**Esin Tekin** (Istanbul Technical University, Istanbul)

Repair materials represent the maintenance and conservation approaches of their time. Therefore, these materials reveal the relationship between the user and the structure throughout their history. This paper will attempt to identify such a relationship through a case study, the Theatre of Ephesos, based on the historical and recent findings of repairs, ranging from the earthquake damages of the Roman period and follow-up solutions to structural problems, to the repairs of the 21st century. According to the data, provided through documentation related to the interventions of the last centuries, these periods can be more thoroughly explored in the light of conservation practices, prevalent ideas, discoveries of new materials and their implementations. Furthermore this information may be used to interpret the approach towards a monument, defining a different set of values attributed to the structure during different periods.

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